THE INDUSTRIAL DEVELOPMENT AND COMMERCIAL POLICIES OF THE THREE SCANDINAVIAN COUNTRIES

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John Bates Clark, Director

THE INDUSTRIAL DEVELOPMENT AND COMMERCIAL POLICIES OF THE THREE SCANDINAVIAN COUNTRIES

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INTRODUCTORY NOTE BY THE DIRECTOR

The Division of Economics and History of the Carnegie Endowment for International Peace is organized to 'promote a thorough and scientific investigation of the causes and results of war'. In accordance with this purpose a conference of eminent statesmen, publicists, and economists was held in Berne, Switzerland, in August 1911, at which a plan of investigation was formed and an extensive list of topics was prepared. The programme of that Conference is presented in detail in an Appendix. It will be seen that an elaborate series of investigations has been undertaken, and the resulting reports may in due time be expected in printed form.

Of works so prepared some will aim to reveal direct and indirect consequences of warfare, and thus to furnish a basis for a judgement as to the reasonableness of the resort to it. If the evils are in reality larger and the benefits smaller than in the common view they appear to be, such studies should furnish convincing evidence of this fact and afford a basis for an enlightened policy whenever there is danger of international conflicts.

Studies of the causes of warfare will reveal, in particular, those economic influences which in time of peace bring about clashing interests and mutual suspicion and hostility. They will, it is believed, show what policies, as adopted by different nations, will reduce the conflicts of interest, inure to the common benefit, and afford a basis for international confidence and good will. They will further tend to reveal the natural economic influences which of themselves bring about more and more harmonious relations and tend to substitute general benefits for the mutual injuries that follow unintelligent self-seeking. Economic internationalism needs to be fortified by the mutual trust that just dealing creates; but

just conduct itself may be favoured by economic conditions. These, in turn, may be created partly by a natural evolution and partly by the conscious action of governments; and both evolution and public action are among the important subjects of investigation.

An appeal to reason is in order when excited feelings render armed conflicts imminent; but it is quite as surely called for when no excitement exists and when it may be forestalled and prevented from developing by sound national policies. To furnish a scientific basis for reasonable international policies is the purpose of some of the studies already in progress and of more that will hereafter be undertaken.

The publications of the Division of Economics and History are under the direction of a Committee of Research, the membership of which includes the statesmen, publicists, and economists who participated in the Conference at Berne in 1911, and two who have since been added. The list of members at present is as follows:

Eugène Borel, Professor of Public and International Law in the University of Geneva.

Lujo Brentano, Professor of Economics in the University of Munich; Member of the Royal Bavarian Academy of Sciences.

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Sir George Paish, Joint Editor of *The Statist*, London.

Maffeo Pantaleoni, Professor of Political Economy in the University of Rome.

Eugen Philippovich von Philippsberg, Professor of Political Economy in the University of Vienna; Member of the Austrian Herrenhaus, Hofrat.

Paul S. Reinsch, United States Minister to China.

His Excellency Baron Y. Sakatani, recently Minister of Finance; Present Mayor of Tokio.

Theodor Schiemann, Professor of the History of Eastern Europe in the University of Berlin.

Harald Westergaard, Professor of Political Science and Statistics in the University of Copenhagen.

Friedrich, Freiherr von Wieser, Professor of Political Economy at the University of Vienna.

The function of members of this Committee is to select collaborators competent to conduct investigations and present reports in the form of books or monographs; to consult with these writers as to plans of study; to read the completed manuscripts, and to inform the officers of the Endowment whether they merit publication in its series. This editorial function does not commit the members of the Committee to any opinions expressed by the writers. Like other editors, they are asked to vouch for the usefulness of the works, their scientific and literary merit, and the advisability of issuing them. In like manner the publication of the monographs does not commit the Endowment as a body or any of its officers to the opinions which may be expressed in them. The standing and attainments of the writers selected afford a guarantee of thoroughness of research and accuracy in the statement of facts, and the character of many of the works will be such that facts, statistical, historical, and descriptive, will constitute nearly the whole of their content. In so far as the opinions of the writers are revealed, they are neither approved nor condemned by the fact that the Endowment causes them to be published. For example, the publication of a work describing the attitude of various socialistic bodies

on the subject of peace and war implies nothing as to the views of the officers of the Endowment on the subject of socialism; neither will the issuing of a work, describing the attitude of business classes toward peace and war, imply any agreement or disagreement on the part of the officers of the Endowment with the views of men of these classes as to a protective policy, the control of monopoly, or the regulation of banking and currency. It is necessary to know how such men generally think and feel on the great issue of war, and it is one of the purposes of the Endowment to promote studies which will accurately reveal their attitude. Neither it nor its Committee of Research vouches for more than that the works issued by them contain such facts; that their statements concerning them may generally be trusted, and that the works are, in a scientific way, of a quality that entitles them to a reading.

JOHN BATES CLARK,
Director.

CONTENTS

THE INDUSTRIAL DEVELOPMENT AND COMMERCIAL POLICIES OF

	PAGES
I. DENMARK	11–32
II. SWEDEN	33–82
III. NORWAY	83–115
INDEX	117–124

GENERAL APPENDIX.

I. DENMARK

Denmark adopted the mercantile doctrines very early —as far back as 1651—and was also the first country to abandon them. While it was in vogue the prohibitive system was an almost unmixed evil. There was at the time no natural foundation for a high industrial development, and if in spite of this fact factories and 'industries' were to be developed, it could only be done at the expense of agriculture and commerce. Importation of all goods whose domestic production was at all possible was forbidden. Moreover, with the object, not of advancing agriculture, but of cheapening the necessaries of life in the interest of 'industries', the exportation of many agricultural products, especially grain, was either prohibited or discouraged by export duties; commerce in these articles was obstructed by multiplied restrictions relating both to importation and exportation, and even more by the uncertainty of the Government's tariff policy. The regulations on the subject changed with confusing frequency; in the course of one hundred years, for example, the duties on grain were altered seventy-eight times. The principal industries were cloth and textile manufactures, flour mills, brandy distilleries, sugar refineries, porcelain works (the manufacture of Copenhagen ware was founded in 1775), tanneries, &c.; the iron and glass industries of the monarchy were carried on in Norway, Norway and Denmark being of course politically united down to 1814. As the people did not take to the various manufactures with an enthusiasm equal to that of the Government, a colossal smuggling trade was the result.

Such was the condition of affairs when the new liberal ideas came into Denmark. The great agricultural reform of

the country began with an official determination of the limits of holdings in 1781 and 1792; serfdom was abolished in 1788 and feudal services in 1799. At the same time with this movement, the new or Physiocratic ideas—as well as dire necessity, which was not the least effective cause—forced a change in the commercial policy, the results of the previous prohibitive system having been far from satisfactory. In 1788, the great year of liberation of Danish agriculture, the prohibition was removed from the exportation of grain and cattle, and all export duties on grain abolished. In 1793 new liberal principles found expression in the introduction of the bonded-warehouse system, and a thoroughgoing reform of the whole tariff policy was promised. This reform was carried out in the edict of February 1, 1797, which marked a complete break with the mercantile system, and placed Denmark in advance of all other countries in the liberality of her commercial policy. The reform entirely abolished all restrictions on exportation, modernized and simplified the whole tariff system, extended bonded-warehouse privileges, and finally reduced all duties to an average of ten per cent *ad valorem*.

The liberality of the new Danish commercial policy and agricultural organization was unique for the time and of the greatest significance for the country. A free peasantry arose and agriculture expanded rapidly with the introduction of the modern methods. The extensive and costly reforms in agricultural methods were also favoured by a great rise in the price of all agricultural products. But especially commerce, which was in the hands of a great 'privileged company', showed an enormous development at the close of the century, due to the armed neutrality of the northern powers in the wars of the time. Danish wholesale trade extended to the East and West Indies, to Africa and elsewhere. Copenhagen became the great entrepôt of the Baltic and the Cattegat, and the centre of a magnificent transit trade. A single firm, 'Det Asiatiske Kompagni,' brought

to Copenhagen in the years 1772–1806 goods to the value of 130,000,000 Rix-dollars (425,000,000 kroner). In 1805 the commercial fleet numbered over 1,000 ships, with a total tonnage of more than 72,000.

The unfortunate war with England, 1807–14, brought this 'brilliant commercial period' to a sudden conclusion. In the English attack on Copenhagen in 1807, Denmark lost her strong navy, and the Danish-Norwegian shipping and commerce were sacrificed.[1] About 1,000 Danish ships, or practically the whole commercial fleet, fell into the hands of the enemy. The oversea connexions were broken off and lost, the great commercial houses and the industries of the country were ruined, and especially Copenhagen, the capital, suffered incalculably. The rest of the country suffered less from the war, thanks to the continued high prices of agricultural products; from 1801–10 an extraordinary rise in prices resulted from the continental blockade. Yet the losses were too great, and the monetary system broke down; in 1813 the Government declared itself bankrupt, and when peace finally came in 1814 the country was without the necessary capital to repair the damages it had sustained. The flourishing foreign and wholesale trade was irretrievably lost. In addition, there was a devastating crisis in agriculture, in consequence of the rapidly falling prices of grain, which made it scarcely profitable to harvest the crops. From 1818 to 1828 conditions were at their worst. The price of rye, which from 1801 to 1809 had averaged 12·3 kroner per hectolitre, sank to an average of 4·6 kroner per hectolitre for the years 1821–30. Agricultural exports were further encumbered or rendered impossible by the prohibitive rates of England's customs duties. Prodigious taxes burdened the land; agriculture, industry, commerce, all were seriously affected.

Very slowly the times improved. Land values were finally so depressed that new owners could work at unusually

[1] In this connexion see also Norway.

low costs and agriculture was ready for the upward movement. About 1828 the crisis in agriculture was passed, and at the same time that prices began to rise new rational methods and machinery were introduced. Manufactures began to revive at about the same time. The situation in this field felt the influence of the introduction from Norway, on the loss of that country by Denmark in 1814, of several branches of industry, such as iron and glass works, which had formerly supplied the Danish trade. In the business of the country, however, agriculture continued to predominate, and in 1840 still employed fifty-eight per cent of the population. The industrial development was most pronounced in the Duchy of Holstein.

Commerce, and especially that of the capital city, was slowest to recover. Copenhagen lost its pre-eminence in this respect not merely over the Baltic region but over the Danish provinces (especially Jutland), and fell behind Hamburg and Lübeck. The flourishing provincial towns became tributary to the city on the Elbe, and Hamburg's commercial sway extended uncontested as far as Skagen. The imports by water of the provincial cities rose from 44,000 to 122,000 tons between 1826 and 1845, while those of Copenhagen increased only from 74,000 to 146,000 tons. The constantly growing export trade in grain also worked to the advantage of the principal ports, from which it could be more directly shipped. The exports of grain amounted in the 'thirties to 160,000,000 kilogrammes yearly; in addition, 12,000 head of horses, 40,000 head of cattle, 13,000 hogs, and 7,000,000 kilogrammes of butter were sent abroad. All these numbers were rapidly on the increase, and the money situation also improved. The notes of the banks of issue or 'national banks', founded in 1818, reached par in 1838, and were made redeemable in 1845.

Under these conditions it cannot cause surprise that the liberal tariff policy was continued in the laws of 1838 and 1844. Manufactures were too weak and insignificant to

carry through protective measures, and the house and small-shop industries of the towns were afforded still further security by the character of local monopolies which they possessed at the time. This monopoly was not merely legal in character, but was due in even greater degree to the defective exchange system and the lack of modern means of transportation and communication, and to the inefficient business organization. Interest centred in agriculture, and it was already felt that this branch of production held rich possibilities for the future.

The war of 1848–50 produced significant results for the business of the country. The influence of Hamburg suffered practical suspension in consequence of the war, which led to the emancipation of Danish commerce, and enabled Copenhagen to regain its leadership of the provinces. The new opportunities which presented themselves reawakened the old commercial spirit, and capable men, trained in England and in Hamburg, guided the development. The great military levies of the war years also led to a shortage of labourers, which was especially felt in agriculture, and stimulated the use of labour-saving machinery and appliances. This in turn formed the basis of a domestic iron industry, machine shops, foundries, &c. After the war, the law of 1853 unified the customs of the monarchy, a step which was to have very important consequences, as the Duchies of Schleswig-Holstein had previously had their own tariff system.

From this time on development was rapid. The removal of the English duty on grain in 1849 was a great boon to Danish agriculture. Direct steamship connexion between Jutland and England had already been established in 1848, and trade with that country grew by leaps and bounds. Importation from England in 1847 was ten per cent of the total; in 1851 it was nineteen per cent, and in 1862, twenty-five per cent; while imports from Hamburg fell from twenty-five per cent to twenty-three per cent in the same period.

A flourishing transit-trade again grew up, with Copenhagen as staple point. In 1855, ten per cent of the total exports went to Sweden, especially southern Sweden, and in 1862 the proportion had risen to eighteen per cent. Even the commercial crisis of 1857 worked to the advantage of Copenhagen, whose trade indeed suffered, but who profited by the fact that her great rival, Hamburg, was much more severely affected by the disaster.

Industrial trade schools were founded at this period, and in 1857 industrial freedom was introduced, to the great advantage of the country. Exports of agricultural products increased rapidly, as shown in the following table, giving the yearly averages from 1850 to 1860:

EXPORTS OF AGRICULTURAL PRODUCTS, 1850–1860

Product.	*Average Annual Export.*
Grains	300,000,000 kilogrammes
Butter	9,000,000 „
Horses (approx.)	12,000 head
Cattle „	60,000 „
Hogs „	60,000 „

The numbers of live-stock in the country in 1861 are shown in the next table.

LIVE-STOCK. 1861

	Head.
Horses	325,000
Cattle	1,120,000
Sheep	1,750,000
Hogs	300,000

In these years was also laid the foundation for the present enormous butter-production of Denmark, by improving the manorial dairies and securing free entry into England for their product.

The Straits toll, which had naturally acted as a handicap on the commerce of Copenhagen, was removed in 1857 on a payment to the Danish treasury by the maritime nations of an indemnity of 65,000,000 kroner. After the customs

unity of the monarchy had been achieved, as already mentioned, in 1853, a revision of the tariff laws became necessary. Not until 1863 were the efforts to enact a new schedule successful (it was passed July 3 of that year), and before the law went into effect, on April 1, 1864, the Duchies of Schleswig and Holstein were lost to Denmark as a result of the unfortunate war of 1864. Thus the tariff law of 1863 applied only to the kingdom, although in framing it the conditions in the duchies had been especially in mind. Regard for the industries of these sections had led to a policy much more friendly to the protective idea than would have been the case if the law had been intended for the kingdom, where industries were undeveloped and the principle of free trade was fully dominant. The new law was, however, a modification of that of 1797, and was in fact very moderate. Export duties were entirely abolished, though transit duties remained in force until removed by the law of 1865.

As a result of these conditions the new customs law was much more significant for Danish manufacturers than had been intended. As they profited by the protective features enacted in the interest of Holstein, many industries were brought into the kingdom, which had formerly supplied the needs of the whole monarchy from Holstein, as, for example, the tobacco industry. A strong industrial development set in, and from this time on it is possible to speak of important manufactures in Denmark. In the year 1871, 1,400 factories were in operation, of which no fewer than 374 had been founded after 1864, while 231 of the older establishments had been enlarged since that date.

With respect to customs treaties, Denmark consistently refused to conclude such agreements, in order to retain a free hand in regard to her tariff policy; yet Denmark was the one country to leave its tariff schedules unchanged for a period of forty-four years, and that at a time when the greatest changes were taking place in the tariff policies of other countries.

The dominant feature of Denmark's agriculture at this period was the production of grain. The highest point in grain exportation was reached in the middle of the 'sixties with 300,000,000 kilogrammes per year.[1] The prices of the most important grains were rising steadily, and attained their highest level only in the years 1871–5, after which time oversea competition made itself felt. The following table gives a general view of the changes:

Prices of Grain in Kroner per Hectolitre

Period.	*Rye.*	*Oats.*	*Wheat.*
1841–50	6·53	3·05	9·11
1851–60	9·27	4·62	12·54
1861–70	9·21	4·83	12·54
1871–5	10·29	5·92	14·42
1876–80	9·50	5·64	12·85
1881–5	8·53	5·41	10·68
1886–90	7·10	4·95	9·08

After grain-production, stock-raising was next in importance. The following table shows the exportation of live-stock:

Live-Stock Exports

Period.	*Horses.*	*Cattle.*	*Sheep.*	*Hogs.*
1866–70	12,000	51,000	11,000	39,000
1871–5	9,000	74,000	44,000	154,000
1876–80	11,000	99,000	64,000	213,000
1881–5	11,000	109,000	87,000	287,000
1886–90	16,000	111,000	77,000	136,000

Cattle were exported principally to England, while hogs went chiefly to Germany. Exportation of animal products was negligible down to 1890. An important stimulus to agriculture was the highly developed mortgage system, based on a law of 1850, whereby it obtained abundant capital; the total indebtedness on farms amounted in the year 1880 to 1,200,000,000 kroner. In view of the prevalence of small holdings cultivated by their owners, this high

[1] After 1864 the figures relate to the kingdom alone.

indebtedness was, however, attended with some risk for the farmers in the case of a fall in the price of ground-rents. Such a fall was soon to occur. The continuous and steady improvement was broken off by the crisis which American competition brought on in the agricultural countries of Europe in the 'seventies and 'eighties. The unprotected farming industry of Denmark lay entirely open to this powerful competition. Yet the crisis did not here, as in most of the other countries, lead to an agitation for protection of domestic producers. It was fortunate for Denmark that the prices of animal products did not share in the general decline, but even, especially in the case of butter, continued to rise.

As soon as the fall in grain prices was seen to be permanent, Danish agriculture undertook with remarkable energy and insight the difficult and expensive change from grain-production to that of animal products, as, for example, pork and butter, or in other words, the transformation of extensive into intensive farming. There was a marked increase in the number of hogs as well as of cattle, and, in consequence of hard work on the practical as well as the scientific side, the dairy business also developed rapidly. About 1880 the centrifugal separator was introduced, and in 1882 the first co-operative dairy was founded, quickly followed by numerous others. To-day these co-operative establishments number about 1,000, besides 300 private—principally stock-company —concerns. This marked the introduction into Danish agriculture of the co-operative principle, which soon became of the greatest importance, especially for the smaller and medium-sized farms, procuring for them the advantages of the large-scale producers in perfecting their products. As the transition from extensive to intensive farming was also of especial advantage for the smaller producers, the latter became a principal factor in the new development of agriculture, while the larger estates, which were better suited to grain-production, suffered most heavily from the crisis.

On account of the depression, land values fell rapidly after the middle of the 'eighties, and the decline continued until about 1900, amounting in all to a fall of twenty per cent. It became extremely difficult to meet the interest on the heavy mortgages, the amount of the indebtedness rising to an average of fifty-four per cent; nevertheless, the stability of the mortgage credit system remained entirely unshaken.

From this time on the co-operative idea became the basic principle of modern Danish agriculture, and soon found application in buying and selling as well as in production. Middle-men have frequently been almost entirely displaced in agriculture by these often gigantic co-operative enterprises. When in 1877 Germany prohibited on sanitary grounds the importation of live hogs, it was necessary to change over to the slaughtering of the animals and exportation of pork, and England became the principal market for this product. Here was new scope for initiative in the co-operative field, and in the year 1887 the first co-operative slaughter-house was started. The following year found eight such establishments in operation, and now the number is thirty-five, exclusive of twenty-three which are privately owned. There are now annually slaughtered 2,200,000 swine, with a value of approximately 150,000,000 kroner. Co-operative associations for the exportation of eggs were also founded. In the year 1892 prohibition by England also of the importation of live-stock from the Continent greatly stimulated the slaughtering industry, and the German sanitary regulations (tuberculin tests, ten days' quarantine, import only by sea, &c.) worked in the same direction after 1897.

This whole movement marked the beginning of the industrializing of Danish agriculture. A further result was that the country was soon in a position to extend the development on the basis of a very considerable consumption of imported feed (barley, maize, oil-cake, &c.), since the domestic grain-production did not furnish sufficient provender for the

rapidly increasing animal production. This explains the fact that Danish agriculture has taken no interest in a tariff on grain and similar regulations, such as agrarians in other countries have pushed through as an offset against agricultural depression. In its commercial relations also the agriculture of Denmark has become in fact 'industrial', working as it does with imported foreign raw materials, which it transforms into high-grade finished products, chiefly for exportation on a large scale. The following table shows the shift between the leading categories of agricultural products in Denmark's foreign trade:

ANNUAL EXCESS OF EXPORTS OVER IMPORTS
(In million kroner)

Period.	*Live Animals.*	*Animal Products.*	*Cereal Products.*
1871–5	34	26	39
1876–80	44	22	28
1881–5	50	30	3
1886–90	35	66	−10
1891–5	33	107	−25
1896–1900	19	163	−46
1901–5	28	230	−61
1906–10	30	300	−76

The value of the exports of animal products was distributed as follows in 1912:

ANIMAL PRODUCTS. EXPORTS, 1912
(In million kroner)

Article.		
Butter	(approx.)	191
Pork	,,	141
Eggs	,,	27
Cream and Milk	,,	23

As already remarked, the exportation of live-stock has fallen off sharply as a result of this development. The annual exports amount at present to about 20,000 head of horses and 100,000 head of cattle, all of which go to Germany. To the same country are sent the exports of cream and milk,

while the butter, eggs, and pork go to England. Two-fifths of England's total importation of butter is entered from Denmark, and the same is true of one-third of her importation of pork. The table below shows the exportations of live-stock:

LIVE-STOCK EXPORTS
(Million head)

Year.	*Horses.*	*Cattle.*	*Sheep.*	*Hogs.*	*Poultry.*
1871	0·32	1·2	1·8	0·4	—
1881	0·35	1·5	1·6	0·5	—
1893	0·41	1·7	1·3	0·8	5·8
1903	0·50	1·8	0·9	1·5	11·6
1909	0·54	2·2	0·7	1·5	11·8

In 1903, eighty-one per cent of all the dairy cows in the country were on farms connected with co-operative dairies, while fifty per cent of all the hogs were butchered in co-operative slaughter-houses.

In 1907, seventy-five per cent of the surface area of Denmark was under cultivation. Large stretches of the heath and moor districts in Jutland have since been brought under tillage, chiefly through the tireless activities of the heath reclamation company; now only four per cent of the total land acreage is regarded as untillable. The total value of the harvests is now from 600,000,000 to 700,000,000 kroner annually, whereas in the years 1875–85 it was about 300,000,000 kroner. The total value of the exports of agricultural products for 1912 was 522,000,000 kroner, that of the same class of imports 260,000,000 kroner, hence the net exportation was 262,000,000 kroner. In the years 1901–5 the average animal net exportation was 148,000,000 kroner; in 1906–10, 184,000,000 kroner. In 1912, forty per cent of the population of 2,800,000 were engaged in agriculture and fisheries.[1] This enormous development of

[1] Agriculture has in recent years employed a large number of foreign seasonal labourers (Poles). At the present time the number is about 10,000 each year; they are employed chiefly in the cultivation of sugar-beets.

agriculture has been strongly encouraged by the Danish Government. State-supported associations and institutions work for the improvement of the industry; in the fiscal year 1910–11, 3,700,000 kroner were devoted directly to the encouragement of agriculture through stock-breeding, premiums in stock exhibitions, &c. (In 1887–8 the amount was 1,200,000; in 1899–1900, 2,200,000 kroner.) Magnificent scientific institutes are devoted to the service of agriculture, while the excellent Danish 'high schools' (*Hochschulen*) should also be named as a factor in the general progress.

The total value of the farms amounted in 1909 to about 2,500,000,000 kroner, of which large estates (baronial manors, &c.) represented eighteen per cent, smaller estates eighteen per cent, and peasants' farms sixty-four per cent. To encourage the development of small farms the laws of 1899, 1904, 1909 provide for cheap loans by the State. Up to 1912, 6,300 such farms had been established, and the sums loaned by the State for the purpose totalled over 28,000,000 kroner. Loans are also granted for the purpose of parcelling out the larger estates. As shown above, cultivation by owners is the prevailing rule in Danish agriculture. Of the 250,000 farms in Denmark, about 210,000 are worked by their owners.

The mortgage credit system has been farther and farther developed. The total indebtedness on the farms was estimated in 1903 at 1,200,000,000 kroner. The average indebtedness was fifty-four per cent of the value. The system of mortgage associations was supplemented in 1906 by the establishment of a State mortgage bank, whose business it should be to cover the existing loan association obligations by the issue of a unified mortgage paper adapted for foreign markets. The high indebtedness of the farms has also attracted attention in recent years, and the danger involved has been repeatedly pointed out. Large sums leave the country yearly as interest, and a change in this respect would undoubtedly be very desirable. On the other

hand, it must not be forgotten that Danish agriculture has gradually taken on an ideal character in many respects, and could never have reached its high stage of development without the aid of foreign capital. The ever-increasing productivity achieved by intensive cultivation, modern machinery, costly animal-breeding, &c., form, it must be remembered, the credit side of the account.

It goes without saying, that in comparison with this tremendous development of agriculture the growth of manufactures has necessarily fallen into the background. Especially with respect to exportation, manufactures were almost insignificant down to a few years ago; but this relation seems to be changing at present, particularly as the attention of the nation is being drawn more and more to industrial development. We have seen how not only the war of 1864, but also the customs regulations of that year, were favourable to manufactures. In the 'seventies and 'eighties there was a strong movement of population from the country to the towns, and the latter grew rapidly. The development of agriculture created great opportunities also for the towns. By this means a further industrial development was favoured, and shops and factories profited by the increased purchasing power of the rural population. The requirements of agriculture also called new industries into being, such as the manufacture of farm machinery and implements, wagons and carriages, &c. The development of the railroad network and the consequent prosperity of the towns and larger villages, further stimulated the growth of manufactures. Textiles and metal working were especially flourishing, and a new industry was added in the production of sugar, which now plays an important rôle in both the manufactures and the agriculture of the country.

At the time when protectionist ideas were gaining the ascendancy in all the neighbouring countries, the tariff policy of Denmark offered a picture of unalterable calm and steady adherence to the old ways. One reason for the

survival of liberal commercial policy, it is true, lay in the unfortunate political relations of the country, but another reason was the fact that there was no occasion in Denmark for the union of agriculture and manufactures in the advocacy of a protective system, since agriculture had nothing to gain from such a policy. Thus the recent period passed by without a change, and not until 1908 was the effort successful to put through a new tariff law, and even then the measure represented a moderation of the old law. This does not mean that attempts have not been made in the direction of a revision of the tariff system; no less than seventeen such attempts failed before the effort was successful and a revision secured,[1] which was not then achieved until it had been rendered urgently necessary by changing conditions, which left the old law antiquated and inadequate. Except for a reduction of the duties on sugar and petroleum in the year 1891 the tariff schedules had not been changed in the period from 1864–1908, and Danish manufactures had in consequence not been exactly pampered. When the tariff revision finally came, it was carried through in a spirit of outspoken friendliness to free trade, and the best the industries could do was to endeavour to limit further reduction. It should be emphasized, however, that even without considerable protection manufactures had grown so strong that they were not only able to withstand the new reductions, but even continued in spite of them to develop rapidly. It is true, however, that the evil effects of the dumping system are occasionally felt in certain industries, and also that the results of Sweden's change to protectionism in 1888 were noticeable in Denmark's manufactures and commerce; on the other hand, Danish manufactures operate with relatively cheap raw materials and productive agents.

The customs law of May 5, 1908, modernized the whole tariff system, and removed or lowered the duty on most raw materials and means of production; thus coal, iron

[1] After the opposition party, the Left, came into power.

rods, and bar-iron, pig iron, &c., as well as oils, petroleum, and the like, are duty free. Protective schedules were greatly reduced, and *ad valorem* duties were applied to a greater extent; the duty on miscellaneous articles is 7·5 per cent of the value. The effect of the reduction is shown in the fact that since 1908 the income of the Government from the tariff amounts to about six per cent of the imports, where previously it had been between seven and eight per cent.

Modern industrial statistics exist only for the time since 1897. 'The industrial census' of that year showed 77,000 establishments, with 180,000 industrial labourers. At the latest census (1906) there were 85,000 establishments, with 208,000 employees. The total mechanical energy employed was 49,200 horse-power in 1897, and in 1906, 125,000. It will be seen that Danish industry is predominantly of the small-shop variety, though in recent years the growth of large plants has been rapid. The following table shows the total personnel, including labourers and other employees in the various industries:

EMPLOYEES IN VARIOUS INDUSTRIES

Industry.	*No. in* 1897.	*No. in* 1906.
Food Products	47,000	55,000
Textiles	19,000	19,000
Confectionery	57,000	63,000
Building	63,000	76,000
Timber Products	13,000	13,000
Leather	1,500	1,200
Stone and Glass	16,000	17,000
Metals	40,000	49,000
Chemicals	7,000	9,000
Paper	2,500	2,800
Decoratives	7,700	10,000

The table below shows, by principal groups, the value of the products of Danish industries in the years 1905 and 1911:

RELATIVE IMPORTANCE OF INDUSTRIES
(In millions of kroner)

Industrial Groups.	*Value of Products.* 1905.	1911.
Food Products	197	255
Metals	65	77
Chemicals	35	69
Textiles	50	47
Stone, Terra Cotta, Glass	28	36
Paper and Graphic Arts	22	29
Timber Products	25	24
Leather Products	17	22
Total	439	559

The last table shows most clearly the striking development of Danish manufactures which has taken place in the last few years. The table which follows gives the figures for the particular industries in which this development has been most rapid.

INDUSTRIAL DEVELOPMENT. SPECIAL INDUSTRIES
(In millions of kroner)

Industrial Branch.	*Value of Products.* 1905.	1911.
Sugar	23·5	55·0
Oleomargarine	23·2	35·0
Tobacco	16·6	20·0
Coffee-roasting	8·0	16·0
Machinery and Shipyards	48·0	52·0
Electric Cables	2·6	7·5
Metal Goods	4·3	6·0
Oil Mills	6·9	30·0
Chemicals	6·1	12·0
Cements	3·8	10·0
Shoes	9·4	12·5

It is now universally recognized that the industrial possibilities of a country are no longer absolutely dependent on natural relations, such as mineral wealth, &c. Cheap modern means of transportation, especially by water, have placed the raw-material question rather in the background, and the

principal conditions of a highly developed industrial life are now above all technical skill and energy, competent workmen, and sound money and market conditions and the like. With its many splendid harbours and its excellent geographical situation,[1] its high stage of general culture and thorough technical education, Denmark has rich possibilities for further progress in the industrial field. Undue specialization in the agriculture of a country now becomes impossible as soon as cultivation reaches the intensive stage and the population attains a certain stage of culture. This is shown even in the incidental phases of present-day agricultural development. Take, for example, the growth of beet-sugar production; of the machine industry—first for the repair and then for the independent manufacture of farming implements and tools; the manufacture of feed and fertilizers, of oleomargarine, &c., and of oil-meal; the packing industry, &c. The marketing of agricultural products gives rise also to an extensive commerce which in turn leads to the establishment of shipyards, ironworks, &c.; in short an exclusively agricultural country is to-day an impossibility under the conditions as described.

Moreover, when the population reaches a still higher stage of efficiency it will no longer be contented with a one-sided industrial life. The question of culture is here quite significant. The famous Copenhagen china industry is an example of this; another is the construction of the first ocean-going motor ship of the world (the *Selandia*, 10,000 tons burden) by the shipyard of Burmeister & Wain at Copenhagen[2] in 1912. The former achievement is the result of artistic skill, the latter of technical; many such examples might be named.

[1] For example, the freight on coal from the coalfields of the North of England is as cheap to Copenhagen as to London itself.

[2] This shipyard, the largest in Scandinavia, employing at present about 4,000 workmen, has delivered, or has at present under construction (spring of 1913), altogether 17 motor ships with a total horse-power of 70,000. Thus it has established its position as leader of the world in this field.

Danish exports of other than agricultural products remained for a long period at around 30,000,000 to 40,000,000 kroner annually. In the last three years the value has increased to 49,000,000, 58,000,000, and 71,000,000 kroner respectively. The values of purely manufactured products were as follows :

EXPORTS OF MANUFACTURED PRODUCTS
(In millions of kroner)

Year.	*Value.*
1909	26
1910	35
1912	59

This shows an increase of a hundred per cent in four years, which, as far as one can see, is not traceable to any chance cause. The actual value of the exported products of various industries for 1912 is shown below :

EXPORTS OF MANUFACTURES, 1912
(In millions of kroner)

Class.	*Value.*
Sugar	9·0
Beverages	1·5
Oil, Oil-cakes, &c.	7·3
Chemicals (Fertilizers, &c.)	3·1
Minerals (Cement, &c.)	9·0
Porcelain, &c.	1·8
Iron Manufactures, &c.	6·1
Ships	6·6
Machinery	8·6

We have seen how manufactures have grown enormously in spite of the absence of tariff protection. They have, however, had ground for complaining of a lack of interest on the part of the general public as well as the Government. This situation is comprehensible in a country of pronounced free trade tendencies, especially in view of the great preponderance of agriculture in the national economy. But in this respect also a change is manifest, and the association ' Dansk

Arbejde' (Danish Labour), founded in 1908, labours for the advancement of domestic industry.

The commerce of a country like Denmark must needs be large. The growth of the export, import, and transit trade is shown in the following table:

FOREIGN AND TRANSIT TRADE
(In millions of kroner)

Period. (*Annual Average.*)	*Foreign Trade.*		*Transit.*
	Imports.	*Exports.*	
1876–80	196	152	19
1881–5	235	155	27
1886–90	238	164	32
1891–5	296	211	43
1896–1900	366	250	89
1901–5	444	342	134
1906–10	571	437	170
1912	734	593	?

The establishment of the free port at Copenhagen in 1894 has among other things contributed largely to the growth of the transit and staple trade. The deficit in the trade balance of the country is largely covered by the earnings of its shipping industry, the gross proceeds of whose foreign business are at present from 80,000,000 to 100,000,000 kroner, of which sum about half is profit for the country. The income from transit trade, &c., ranges from about 8,000,000 to 10,000,000 kroner.

The trade with the principal commercial countries is shown in the following table:

FOREIGN TRADE WITH PRINCIPAL NATIONS

Country.	*Imports.* (*Per cent of the total.*)			*Exports.* (*Per cent of the total.*)		
	1876	1901	1908	1876	1901	1908
England	24	16	16	40·0	58	55
Germany	38	32	34	32·0	20	21
Sweden	11	10	8	14·0	8	7
United States	6	14	14	0·2	3	5
Russia	7	13	11	0·5	5	6

The shipping industry has always been of considerable importance in Denmark. In contrast with Sweden and Norway, the larger part of the business in Denmark is done by regularly established lines, owned by large companies. The two greatest in the country are 'Det forenede Dampskibsselskab' (D. F. D. S.) and 'Östasiatisk Kompagni' (Ö. K.),[1] which maintain routes to America, Africa, and East Asia, the latter also carrying on wholesale merchandising and manufacturing. By these and other companies the active commercial spirit of the brilliant commercial period about the year 1800 has been reawakened. The table shows the tonnage of the commercial fleet at different dates.

TONNAGE OF MERCHANT FLEET

	Sailing Ships.		*Steamships.*	
Year.	*Number.*	*Tonnage (R.T.).*	*Number.*	*Tonnage (R.T.).*
1800	700	70,000	—	—
1839	1,600	65,000	3	146
1862	2,700	130,000	43	4,000
1879	2,900	200,000	192	44,000
1895	3,000	180,000	400	144,000
1905	3,100	130,000	570	330,000
1911	2,100	95,000	640	412,000

Forestry is of less significance in Denmark, only eight per cent of the land being wooded. Fisheries, on the other hand, employ 17,000 men, with 13,000 boats of a total tonnage of 28,000, 1,500 equipped with motors. The annual yield of the fisheries is about 13,000,000 kroner. Exports of fish amount to 8,000,000 kroner; imports, however, to about 5,000,000.

The total length of the railways is 3,500 kilometres, 2,000 kilometres representing State railways and 1,500 kilometres private lines. Connexion between the different islands is effected by means of train ferries.

[1] The tonnage of the D. F. D. S. (including vessels building) is at present approximately 200,000, that of the Ö. K. about 160,000. The latter company owns the largest motor fleet in the world, comprising 16 large motor ships.

The three Scandinavian countries have by treaties of 1873 and 1875 a common coinage system, with the krone as the unit of coinage; letter postage is also the same for all Scandinavia. With the exception of certain legal relations, however, these are the only bonds of economic union which exist at present between the three countries. Efforts to achieve a ' practical Scandinavianism ', especially in the way of a customs union, have thus far proved unsuccessful. Agitation toward this end has, moreover, subsided since 1905, and in fact it is questionable whether such a customs union is possible, in view of the different economic conditions in the three countries.

II. SWEDEN

The prohibitive system remained longer in force in Sweden than in the neighbouring Denmark. The new political constitution of 1809 brought with it no change in tariff policy. The schedules contained numerous sweeping prohibitions, relating to exports as well as imports, and with regard to shipping, the so-called 'Schedule of Products' of 1724, the Swedish copy of the English Navigation Act of 1651, was in force. The Continental policy of Napoleon even involved for a time an increase in the rigour of the system.

At this time exportation of lumber was already of the greatest significance for Sweden, England forming the principal market for this product. At that period, lumber occupied almost the same position in the world economy that iron does to-day. The great fleets of merchant vessels and warships used wood for mast timber as well as for building purposes; the construction of buildings of all kinds, of dams and dykes, of foundations, &c., was based on a wood technique which was very highly developed. In 1809, Sweden exported lumber to the amount of nearly 32,000,000 board feet, no less than two-thirds of which went to England. The total value of the exports of lumber was estimated at 5,500,000 kroner, and formed one-seventh of the total exports of the kingdom. At the time of the Napoleonic wars the development of the lumber trade was interrupted. Thus in 1809, England, by way of retaliation against the Continental blockade, increased sharply the import duty on wood coming from the Continent; in 1813 the duty was again enormously increased, so that it finally amounted to £3 5*s.* (59 kroner) per 'load' (1·42 cubic metres). This duty produced a much greater effect on European exports

to England by virtue of the fact that at the same time a very small tax was collected on the same products imported from British North America. In consequence, the trade between Sweden and England naturally fell into decay. It is true that the English duty was lowered after the close of the war to £2 15*s.* per ' load ', but at the same time that on the American product was only 10*s.* As a result, European lumber was practically excluded from the English market. It is even said to have been shipped from Europe across the Atlantic to America, in order later to be brought to England as the American product. In spite of these conditions, however, the Swedish lumber trade was by no means at a standstill. In the year 1821 there were 3,633 sawmills, with a production of over 38,000,000 board feet, of which 29,000,000 was exported. It goes without saying that so important an article of export as lumber then formed was subjected to an export duty.

The Continental blockade did not have for Sweden the disastrous consequences suffered, for example, by Norway, where the interruption of importation of grain caused actual suffering for lack of food. The grain harvest of Sweden in the years 1801–20 averaged 6,600,000 metric tons per year, while the annual consumption was 6,900,000 metric tons, so that the country was almost independent of a foreign food-supply.

Besides agriculture and forestry, mining also played an important rôle in the economic life of Sweden at this period. The industry is very old, and has for centuries been of the greatest importance for the country. As long as charcoal was used exclusively in the smelting of iron, Sweden ranked high among the iron-producing countries of the world; but at the close of the eighteenth century the new puddling process was introduced, which permitted the use of mineral coal. This new method changed the former conditions entirely, and to the disadvantage of Sweden, which did not possess sufficient coal deposits to enable the new large-

scale production to be carried on there. In 1800, Sweden's share in the pig-iron production of the whole world was still placed at ten per cent; the circumstances just referred to brought about a notable decrease in this proportion after that date. At the close of the eighteenth century her annual pig-iron production was 78,000 tons. It reached its highest point in 1805 with 79,000 tons, and then fell off, in consequence of the economic conditions attending the war, to 54,000 tons in the year 1810.

An institution peculiar to Sweden was the 'Iron Exchange', which was founded in 1748, and whose management was freed from all restrictions in 1769. The object of this institution was to aid its members, which is to say practically all Swedish ironworks, with the loan of money on advantageous terms; it also purchased iron from the plants at times of slack demand, and laboured to further the interests of the Swedish iron industry in general. It may be noted that the institution is still in existence.

In the early nineteenth century copper was, next to iron, the most important metal in Swedish mining operations, which indeed is still the case. The copper mines of Sweden are among the oldest in the world. Among others may be mentioned the Falun Mine and the 'Store Kopparbergslags Aktiebolag', which ranked for nearly two hundred years as the largest producer of copper in the world. The last-named company is also probably the oldest industrial corporation in the world. In contrast with copper, the production of silver was already on the decline at the beginning of the nineteenth century, and played only a secondary rôle.

It is but natural that the mercantilist policy should have concerned itself especially with the mining establishments just described, but it also manifested itself in connexion with manufactures. About the year 1800 the principal industries were such typically 'mercantilistic' ones as textile, silk, glass, porcelain, and tobacco factories, and the like. In

Stockholm alone there were no fewer than 463 factories, with a total working force of 10,000 persons and an annual product of the value of about 7,000,000 kroner. The textile industry was especially flourishing here, employing 8,000 persons. By the end of the century, however, the reaction set in. It was partly in consequence of the general revolution in technique which, with its introduction of large-scale establishments, tended to concentrate industries where natural conditions of marketing and production were most favourable.

Another cause of the reaction was the revolution in the dominant modes of economic thought, which deprived the factories of their subsidies, special privileges, &c. The profound industrial changes that characterized the economic life of the greater industrial nations manifested themselves in Swedish manufactures also, and men found themselves forced to build up, almost from the beginning, even those industries to which the country was naturally adapted. It is true that it would be going too far to speak of this period as one of industrial renascence. Yet it is worthy of note that one industry was established in Sweden in those years which has since shown unusual power to survive. We refer to the founding of mechanical engineering establishments, which earned the gratitude of posterity by enabling Sweden to adopt and utilize with extraordinary promptness the epoch-making invention of the steam-engine. The beginning was made in 1809 with the founding at Stockholm of 'Det Owenska Verkstad', which formed the corner-stone of modern mechanical engineering in Sweden. Among its achievements was the construction in 1817 of the first Swedish steamship.

In the commercial field, great privileged trading companies had flourished in Sweden, as elsewhere, during the mercantilistic period. The most important of these, the 'Ostindiska Kompaniet', existed down to 1813. Thanks to the armed neutrality of the country during the North

American War of Independence, Swedish shipping and commerce enjoyed a period of great prosperity at the close of the eighteenth century, which, however, was interrupted for a few years by the war with Russia. Then followed another revival of trade, which profited by Swedish neutrality during the great Napoleonic wars. But when Sweden herself was drawn into the war, her trade and shipping were crippled; the profitable smuggling trade with England, who exported her goods to Sweden to be forwarded to the interior of the Continent, did not reach sufficient proportions to compensate for the loss. Swedish exports resumed their growth only after the peace of 1814 had re-established settled conditions. It goes without saying that at this period domestic commerce was burdened with restrictions and privileges.

That the miseries of the war had not led to the introduction of liberal ideas into Sweden is shown by the customs law of 1816; mercantilistic principles were still more extensively applied, and no fewer than 318 import and 53 export prohibitions were enacted. It was not long, however, before a new attitude came to dominate the commercial policy of the country. The new economic doctrines soon found application even in the forestry regulations of the country. Under the influence of the new ideas as to the impracticability of Government industry, the great State forests in the southern provinces were largely given away outright or sold at a nominal price between the years 1810 and 1830. Unfortunate as were the consequences which were to follow these transactions, in a social-political way as well as in the field of forestry itself, they nevertheless undoubtedly contributed in a high degree to the development of the lumber industry, which soon became of great importance to the country.

After 1823 the new tendencies began to manifest themselves in the tariff policy, and the attacks on the prohibitive system became more and more violent. The zeal of the

Swedish Parliament for reform was traceable not merely to its newly-acquired power over customs regulations; the evil effects of the prohibitive system had long been recognized, and it was hoped that by this means a higher degree of freedom would both infuse new life into trade and commerce and secure an increased customs revenue for the Government. The example of Norway was also serving as a guide, that country having already enacted a customs law in 1821, in which the protective system had been definitely abandoned. As a commercial bond between the two countries, which had since 1814 been under a common king, but between which no customs union subsisted, the so-called Inter-Dominion Ordinance (*Zwischenreichs-Verordnung*) was issued in 1825 and confirmed by law in 1827. The principal features of this ordinance were reciprocal freedom of trade in certain articles; a fifty per cent reduction in duties both for certain domestic products and for foreign goods imported across the boundary; and finally, admission to trade between the two countries on the payment of fifteen per cent *ad valorem* on goods the importation of which from other countries was prohibited.

The new customs law of 1824 still carried 174 import and 28 export prohibitions. The movement which had begun continued, however, slowly but without interruption. The last import prohibition was not removed until 1858, and the system continued to retain its strongly protective character. As early as 1826 a very significant reform was carried through in the change from *ad valorem* to specific duties. Moreover, treaties were concluded with Great Britain, Denmark, Prussia, Russia, and the United States, which secured great concessions for Swedish shipping through the reciprocal grant of most-favoured-nation treatment. Differential customs and port duties were levied upon the trade of other than treaty powers, down to 1857. In the meantime England, which had suffered at least as much as Sweden from the suppression of the importation of Swedish

lumber, repeatedly reduced the duty on that product. The duty was lowered in 1842, in 1851, and again in 1860, when it was cut to a nominal figure, and finally in 1866 it was entirely abolished. The Swedish export duty on lumber products was generally reduced in 1857, and was abolished in 1863.

The disturbed conditions attending the wars at the beginning of the century were followed by crises which paralysed industry and whose effects were still felt, especially in manufactures, down to the 'forties. After this interval of depression came a period of progress and prosperity for Swedish industries, and in the decades about the middle of the century the foundations of modern Sweden, economically speaking, were laid. Population at the time was steadily on the increase; from 2,300,000 in the year 1800 population increased to 3,100,000 in 1840, and 3,900,000 in 1860. Emigration, which later became so important, was at this period quite negligible. Agriculture was throughout the most important industry, employing nearly three-fourths of the population. The average total amount of grain harvested was 900,000 metric tons yearly from 1821 to 1840, and 1,200,000 yearly from 1841 to 1860. After 1841 Sweden began exporting grain, and in the period from 1840 to 1860 the average annual exportation was 500,000 metric tons, increasing gradually. The most important varieties of grain exported were rye and especially oats. The area under tillage rose from 500,000 hectares at the beginning of the century to about 1,000,000 hectares fifty years later. The large production of grain naturally threw stock-raising somewhat into the background. The number of live-stock, taking cattle as a basis, and counting one horse equal to one and one-half head, one sheep equal to one-tenth, a goat one-twelfth, and a hog one-fourth, was estimated for the year 1800 at 2,000,000 head, for the year 1850 at 2,400,000 head. Not until 1844 was stock-raising taken up seriously, when the Diet voted 100,000 kroner for the establishment of

breeding centres; after this time the movement progressed gradually if not with uniformly good results.

About 1850, Sweden still imported annually 500,000 kilogrammes of butter and an equal quantity of cheese, besides 2,300 head of live-stock, while exporting grain. From this time on she began exporting butter and live-stock, and secured an excellent market for these products in England as well as in Denmark. For the encouragement of agriculture numerous agricultural schools and institutes were established, and these attained great importance. Mortgage credit associations, which were founded in the 'thirties and 'forties, also furthered the development of agriculture. As a means of uniting the different associations, the Sveriges allmänna Hypotheksbank was founded in 1861; the principal object of this institution was to negotiate loans for the credit associations.

In the meantime extraordinary development was taking place in the lumber industry. In the 'forties began the construction of modern water-power saw-mills, and in 1857 the first steam saw-mill in Sweden was built; the number of steam mills increased rapidly in subsequent years. The growth of the lumber industry was also greatly aided by the stock-company system, which was introduced in consequence of the edict of 1848 authorizing the formation of such companies. The development of transportation facilities within the country and the introduction of steamships, which considerably cheapened exportation, were likewise very important in this connexion. The rebuilding of the Trollhättan canal (1838–44) was a great advantage for exportation via Gothenburg, and the growth of the railway system soon became of importance for the whole country. The vigorous growth of the lumber mills was also important for Swedish engineering establishments. The latter developed rapidly, particularly after 1850, in the direction of the building of steam saw-mills, turbines, traction engines, and the like. In 1860, sixty steam saw-mills and 5,000

water- and wind-power mills were enumerated in Sweden, and the exports of lumber were estimated at 216,000,000 board feet.

The most important districts for the lumbering industry were the great forest regions in Wärmland and Dalsland, to which was later added Norrland with its almost inexhaustible forest wealth. While wood had formerly been exported in practically the crudest form, as a result of the movement we are describing it became possible for Sweden to work it up into more valuable products before exportation. Of the greatest importance at all times for this whole industry was the cheap transportation of logs by water, and this traffic was now greatly facilitated by the regulation and dredging of the beds of the streams.

Mining also shared in the upward movement. New technical methods were introduced, and iron-ore production increased from about 200,000 tons in the year 1830 to about 400,000 tons in 1860. Exportation of ore was indeed still out of the question; this was made possible only by modern large-scale production and by the newly discovered ore deposits in Lapland as well as by the modern cheap means of transportation. Swedish production of pig iron, which had reached its minimum by the year 1810, rose in the 'thirties to 100,000 tons annually, and in the 'fifties to 160,000 tons per year, and in 1860 reached a level of about 200,000 tons. Blast furnaces were greatly improved in technical respects, and toward the close of the 'fifties experiments were carried out in Sweden which were of essential importance for the discovery of the Bessemer process. The production of steel was still in the future.

For manufacturing itself it was of the very highest significance that the development in this period was more and more in the direction of industrial freedom. Two enactments of 1821 and 1828 resulted in the freeing of industry from the old guild regulations. In 1848 guilds were definitely abolished and their place was taken by free organizations of working-

men in the interest of the trades; finally, in the year 1864, complete industrial freedom was achieved.

In 1840 the total value of the products of Swedish factories was still only about 28,000,000 kroner; approximately half of this amount was divided between clothing, sugar, and tobacco manufactures (8,000,000, 5,000,000, and 2,000,000 kroner respectively). Machine shop products were valued at only 800,000 kroner. From 1840 on, the depression in manufactures was overcome, and development proceeded rapidly. In 1860 the number of factories stood at 2,400, employing 30,000 persons and turning out products to the value of 70,000,000 kroner per year.

Among the most important industries were the flour-mills, which, like the saw-mills, derived the greatest advantage from the cheap power furnished by the numerous waterfalls of the country, also the manufacture of spirits, breweries, tobacco factories, and finally the extensive textile industry. Among the textiles, wool-weaving flourished especially, in particular at Norrköping, 'the Swedish Manchester', where in 1850 the number of cloth factories was 122. Cotton-spinning was extensively followed as well as silk-weaving, the last reminiscence of the days of mercantilism. Tanning, candle-making, soap manufacture, &c., may also be named.

Of especial significance among the new establishments of this period was the founding of a chemical industry which began with the erection of the first plant of the famous Swedish match-factories at Jönköping in 1844. Swedish matches, thanks to continual improvement, soon became a staple article all over the world and one which was destined to be of the highest importance for Swedish industry. Paper mills also made progress at this time and changed to modern methods with the utilization of water power, and glass and porcelain works were in operation, many of which had come down from olden times.

As already mentioned, the development of an extensive machine industry was favoured by the erection of saw-mills,

by the extension of means of transportation, and by the general revolution in industrial technique. Such machine shops, for example, as those of Kockum, Bergsund, Bolinder, Nydqvist and Holm, Motala, Göteborg, Stora Varfvet, Munktells, and many others trace their origin to this period. All the above establishments are in existence to-day, and their names are inseparably connected with the up-building of industrial Sweden. In addition, numerous iron-works and foundries were established. Hardy pioneers guided the development, and world-famous inventors such as John Ericsson (1803–89), inventor of the screw-propeller, G. E. Pasch, inventor of safety matches, and many others, shed lustre over the name of Sweden.

Commerce likewise revived, favoured by the long period of peace and by the establishment of a sound currency. The total foreign trade of the kingdom at the close of the 'thirties had amounted to 57,000,000 kroner (exports 30,000,000, imports 27,000,000); at the close of the 'forties the total was 76,000,000 kroner (exports 40,000,000, imports 36,000,000), and by the close of the 'fifties it reached 160,000,000 kroner (exports 79,000,000, imports 81,000,000). The repeal of the Oresund toll by agreement with Denmark in 1857 was a great boon to Swedish commerce. In these years shipping began to go over to the use of steam propulsion. In 1850 Sweden had 2,700 vessels with an aggregate tonnage of about 200,000, of which about six per cent represented steamships. Also the first State railway was opened in 1856, and railway development was rapid from that time onward.

As already stated, the tariff revisions of the first half of the century had by no means deprived the system of its decidedly protective character. In 1857, however, a complete change took place. Under the influence of the ideas then dominant in the economic field, as well as of the example of the policy of England, free trade doctrines had gained considerable vogue in Sweden. In the Government itself the

new doctrines found their most ardent advocates, especially in the highly gifted and enthusiastic friend of free trade, Baron J. A. Gripenberg, who became Minister of Finance in 1856. The programme of the Government now embraced a complete abandonment of the prohibitive system, with protection only as a transitional expedient and complete free trade as a final goal. In 1857 the duty on grain and flour was permanently removed (it had already been temporarily suspended during the Crimean War); the duty was likewise abolished on cattle, beef, pork, cheese, and butter, most raw materials, the coarser iron goods, machines, tools, and vehicles. At the same time significant reductions were made affecting the finer manufactures. In the report which followed the submission of the Bill, the Minister of Finance used these words: 'I surely am not mistaken in the belief that the public opinion of this country already condemns the protective system which has become more and more discredited in other countries.'

During the same session of the Parliament, in addition to the tariff changes, the differential system in the navigation policy was abolished; from this time on, foreign vessels were placed on an equality with Swedish with respect both to port dues and to duties on cargoes. These changes are important not merely in themselves but as indicating a complete revolution in the Swedish tariff policy. It is of interest, too, to note that the advocates of the new ideas were found especially in the more influential circles.

It soon became manifest, however, that the enthusiasm for free trade had not yet taken deep root either in the Parliament or in the country at large. An immediate incentive for the free trade movement was the desire to bring about a greater freedom of intercourse and a closer commercial union between the recently united countries, Norway and Sweden. A beginning in this direction had been made, as already mentioned, as early as 1825, in the Inter-Dominion Law (*Zwischenreichsgesetz*). The effort was continued on the

Swedish side and a commission, established in the year 1855, soon found that the great inequality in the customs schedules in Sweden and Norway was one of the most considerable obstacles to a freer mutual trade. As at this time the Norwegian schedule was in general notably lower than the Swedish, it was the wish of the Government to bring the latter down to an equality with the Norwegian in order to prepare the way for a later sweeping reduction in that of both countries simultaneously. Meantime, the Parliament was not wholly inclined to follow the Government when it came to a radical departure from the protective system. In 1863, on the occasion of a motion to appoint a committee to work out a new customs schedule, a resolution was carried to the effect that, 'Import duties on manufactured articles produced by domestic industries should be fixed on such a scale that, on the one hand, Swedish producers could have no opportunity to reap unreasonable profits at the expense of the public, and that, on the other hand, it would be possible for them by the use of foresight and industry to compete profitably with foreign establishments more favourably situated as to climate, location, and availability of capital.' But this resolution was disregarded by the Government, and it was ordered that the reconstruction of the system should go forward 'on the basis of a continued application of the principles of free trade, and at the same time that care should be taken that the import duties on manufactured goods also produced by domestic industries should, in cases where it was found necessary, be so adapted to the conditions obtaining that these articles of consumption would not be unduly raised in price.'

Yet it is doubtful after all whether the Government would have succeeded in carrying out a really free trade policy in opposition to the protectionist sentiment of the Parliament, if the conclusion of a commercial and shipping treaty with France in 1865 had not given an impulse in its favour. As previously stated, the Parliament had already (in 1857)

removed all inequalities in the treatment of domestic and foreign ships. This action was especially significant for the relations with France, which nation had previously refused to conclude with Sweden such a mutual agreement as she had already made with other Governments, including those of the most important commercial nations. In Sweden it was expected that the results of the law of 1857 would be a return of courtesy for courtesy on the part of France, and that Swedish vessels would be granted the same advantages that Sweden had granted to the French. This was not the case, however, and it soon became apparent that because of this fact, and also because of the favoured position in French trade which English, Belgian, and Prussian and other German vessels had received by treaty in 1860, 1861, and 1862, Swedish ships were gradually being forced out of that trade. These conditions gave rise in Swedish and still more in Norwegian shipping and trade circles to a growing desire for a shipping treaty with France which should lead to an equality of treatment of Swedish, Norwegian, and French vessels. From the negotiations on the side of France, it soon became clear that she would not conclude a shipping treaty by itself, but only a combined commerce and shipping agreement. Removal of the navigation restrictions would only be granted in return for a reduction on goods exported by France to Sweden and Norway. Thus the latter two countries were forced to ' purchase a shipping treaty with a commercial agreement '. The price to be paid was a reduction of duties, very considerable in the case of the Swedish, less in the case of the Norwegian. The treaty was concluded on February 14, 1865. The commercial agreement resulted, in several instances, in extensive reductions in the duties, and these reductions were made general by the ' most-favoured-nation clauses ' in the treaties with other countries. For Sweden, the result was in part duty reduction and in part free trade, the latter in no fewer than 235 cases. The treaty was, it is true, to be submitted to the Parliament, but

it nevertheless went into effect immediately, a circumstance which aroused extreme disapproval on the part of that body. It had been hoped that a shipping agreement might be secured in exchange for a duty reduction of about 500,000 kroner. It soon appeared, however, that the treaty as drawn reduced customs receipts by 2,600,000 kroner. Under ordinary circumstances, the reproaches to which the Government would have had to listen for all this would have been both numerous and sharp; at this time, however, criticism of the action of the Government was blunted by a diversion of the popular interest to another matter. Upon that session of the Parliament devolved the task of finally deciding the question of a reconstruction of the national system of representation, a question which, after long travail, had finally reached an acceptable solution. The Government, which had laboured diligently to this end, was rewarded with great popularity and was consequently able to bear with unconcern the criticism directed toward it from various quarters in regard to the treaty question, particularly as the matter was settled and not subject to change.

Norway and Sweden received in compensation for all these duty reductions the long-sought-for shipping agreement. Yet the treaty placed the vessels of the united countries by no means on an equality with the French, but provided only that Swedish and Norwegian vessels in French harbours to which they had proceeded directly, should be treated, with respect to the discharge of the cargo, as French vessels were treated in Sweden, which, indeed, was as domestically owned ships. By the French law of May 19, 1866, however, the vessels of all nations were put on an equality with those of France. In regard to the tariff, France in turn granted many reductions in duties, especially on metal and wooden goods, as well as on fish, meats, and cheese. But only actual raw materials and certain kinds of fresh food products were made duty free; all other important articles continued to be taxed. It will be seen that this agreement gives occasion

to admire rather the French diplomacy than the free trade sentiments of the time.

From an economic view-point the following decade was unusually favourable to Sweden. Harvests were bounteous and export relations in the world market were satisfactory. This flourishing development was attributed by friends of free trade to the liberal commercial policy, though in fact it had its roots in the favourable economic conditions of the time.

In the years 1868–9, and especially from 1870 to 1874, occurred a succession of reductions and even abolitions of various duties, and the free trade party gradually gained ground. The promulgation of the Inter-Dominion Law of May 29, 1874, which effected a final settlement of the trade regulations between the countries of the union, is also to be explained chiefly by the free trade tendency. The guiding principles of the law were the following: 'A reciprocal exemption from duties of all domestic products, with the exception of sugar, sugar manufactures, spirits, and malt liquors, coffee, and playing-cards, on which articles full duties were to be levied.' Full duties were also applicable to all foreign goods, whether shipped by sea or overland. It was assumed that the tariff systems of both countries would approach nearer and nearer together through the continued application of the principles of free trade in each, an assumption the erroneous character of which was to prove fatal to the Inter-Dominion Law. Thus, for example, so long as differences existed in the systems of the two countries, an industry could easily be founded in one which, by working up half-manufactured materials from abroad, could profit at the expense of the other country by means of the difference in duty; and in fact it was not long before this condition was realized. With the exception of the above provisions, each of the united countries retained complete autonomy in regard to its customs tariff.

Meanwhile the movement toward free trade was to come

to an end in Sweden also. It reached its culmination in two Bills privately introduced in the Parliament in 1875. The object of these was, among other things, nothing less than to make entirely free the majority of consumption goods and a great number of articles for use in manufactures, and to cancel all duties whose net product for the treasury fell short of a specified amount. The Parliament, however, showed itself little inclined to pass these Bills even in a strongly modified form. It was considered sufficient to remove the duty on some individual articles and to reduce it in the case of others. The majority, though quite friendly to the theory of free trade, yet hesitated to take the last step and definitely abandon the protective principle. Men already felt that new times were approaching and were inclined to be cautious. Even the Government, which now took matters in hand with a view to carrying the free trade movement to complete success, was defeated in its attempt; a Government Bill, which was introduced in the Parliament in 1877, reducing the tariff, especially for the paper industry, was rejected. The ground-swell of the new movement in European tariff policy had reached the country, and the decisive step in the direction of complete free trade for Sweden was destined not to be taken. The time was not yet. Many indications already pointed to the fact that the period of prosperity was drawing to a close and the paper industry in particular had come to feel that this was true. In the tariff policy of the world a strongly egoistic attitude was on the point of becoming dominant, and the approaching struggle aroused a feeling of insecurity among the weak in the face of competition with countries of greater wealth and superior economic advantages.

Sweden now possessed thriving manufactures which would not surrender without a struggle. But, however difficult it would have been for the industries of the time to maintain themselves against an aggressive foreign competition, industrial opinion in the country was still too weak to carry

through, unaided, a change in the tariff policy. The decisive factor in Sweden as in other countries was to be the fact that agriculture also came to suffer under the pressure of new conditions, i.e. from oversea competition; thus it came about that the country and the towns united in the desire to meet the difficulties of the period by increased protection of the national industries.

Another problem which had an intimate bearing upon the movement for developing the means of supporting the national population had been pushing itself irresistibly into the foreground; this was the problem of emigration. Prior to 1860, emigration had hardly made itself felt in Sweden; from 1861 to 1865 the average annual number of emigrants was about 4,000. From 1866 to 1870, however, the average was 20,000. In the period of prosperity at the beginning of the 'seventies the yearly average fell back to about 13,000; but in the latter half of the 'seventies it rose again to 20,000; at the beginning of the 'eighties it was 35,000, and in the latter half of the 'eighties, culminated with over 40,000 emigrants per year. These numbers were so large in proportion to the population of the country that they naturally aroused apprehension. The population of the country had increased during this period from 3,800,000 in 1860 to 4,500,000 in 1880. In the same period the various branches of Swedish industry had made notable growth. In agriculture a high point was reached in grain exportation. From 1860 to 1880 the annual surplus of the harvests over and above domestic consumption averaged 100,000 metric tons. The importation of wheat, which later became considerable, was still small, and the same was true of the importation of rye. The export surplus of oats on the other hand was very large and was estimated in the 'sixties at 140,000 metric tons annually, and in the 'seventies at 250,000. As was natural, the development of stock-breeding was hindered by the enormous grain production. The number of animals increased from 1850 to 1870 by only 200,000

head, reaching a total in the last-named year of 2,600,000 head. Nevertheless, the exportation of butter and of live-stock increased constantly, and great efforts were put forth to encourage the development of stock-breeding. The extensive growth of agriculture led also to the establishment of a considerable industry in the field of agricultural machinery and implements. This industry was later able to compete successfully with agricultural machinery imported from abroad, especially from America, and even came to export a considerable surplus.

In the 'sixties and 'seventies, dairying showed most rapid development and became one of the most important sources of income for the farmer. It was the same industry also which gave rise to the establishment of agricultural machinery manufacture, already referred to, and the invention of the centrifugal separator by Gustav de Laval, in 1878, contributed largely to its development. At the same time marked progress in agriculture, both in theory and in practice, was attained through the work of agricultural schools and institutes.

Forestry, the second great natural source of wealth in Sweden, had likewise flourished. Approximately half the area of Sweden is wooded, and of this, large tracts are the property of the Crown. In 1880 the State forests covered approximately 5,500,000 hectares. The 'liberal' forest policy previously mentioned, which at the opening of the century had led to the free gift or sale at a low price of extensive sections of the State forests, was displaced about 1860 by new principles. The Government now put forth every effort to extend its forest properties as far as possible, with the result that the Crown forests proper increased from 500,000 hectares in 1870 to 2,300,000 in 1880 (besides which there were 3,200,000 hectares of other State forests). At the close of the eighteenth century the Government had, with the object of encouraging the lumbering industry in Norrland, granted certain lumber mills the right to use

timber from the Crown forests on payment of a certain fee. It later developed that these concessions carried with them an unreasonable advantage for the saw-mills in question, and the State abandoned the system.

In addition to the State forests, there are others belonging to the communes. Yet the greater part of all the forests of Sweden (about 22,000,000 hectares) are privately owned, and the legislation with regard to the utilization of these was naturally of greater interest than the regulations with respect to public domains. Private forestry is important for the whole country, and it is not strange that the State should make it an object of regulation. Legislation in this field has varied in the past three hundred years between complete freedom from restriction in forest management at first and later strict control by the State, only to swing back in the first half of the nineteenth century to almost complete freedom. At the period now under consideration a new reaction set in, and many restrictions were placed on the rights of private owners. The change is most easily followed in the great forest exploitation district of Norrland, where wild speculation had operated to the serious detriment of the forests. In 1866 a strict control of timber-cutting was introduced in this region, and in 1873 similar regulations were made applicable to other wooded districts of northern Sweden. As yet, however, the private forests brought under legislative control constituted but a small fraction of those of the country, most of which still enjoyed complete freedom.

The commercial treaty with France was of the greatest importance for the lumber industry, as Swedish timber products were freed from the old customs duties and exports rose with a bound. Progress was particularly steady in Norrland, resulting in a notable movement of population to that section from the rest of the country, but extensive speculation also followed, as mentioned above. As long as the price of lumber was rising, all went well, but in 1874

came the turning-point, when the foreign market failed. At the close of the 'seventies, prices of timber products were falling with fearful rapidity, and a general crash in the lumber industry resulted. The exportation of wood products had increased threefold from 1860 to 1875, reaching in the latter year the value of 100,000,000 kroner, in round numbers, or forty-seven per cent of the total exports of the country. At the same time, the movement for developing wooden manufactures for export went forward, and the industries producing finished wooden products grew steadily. Enormous saw-mills and factories for making various wooden articles were built, and existing establishments were enlarged. Of the greatest importance for the timber industry also was the introduction of cellulose manufacture (see below).

In the field of mining, the output of the iron-mines increased to about three-fourths of a million tons at the close of the 'seventies. Mining and mineral production were not subjected to regulation by the Government. Pig-iron production rose at the close of the 'eighties to 400,000 tons, and at the same time the production of steel began to increase rapidly.

At the close of the 'seventies there were in Sweden approximately 2,800 factories, with 60,000 employees, and an annual production of the value of 150,000,000 kroner. In view of the lack of a native fuel supply, the cheap water-power of the country played an important rôle in many industries, and the modern efficient turbines which were introduced at this time increased the significance of water-power. Among industries which became especially important at this period should be named the newly-established sugar manufacture, and in particular the wood-pulp industry. The first cellulose factory was established at Trollhättan in 1857, and the sulphite method, introduced soon afterwards, assured a great future for this industry, which has become typically Scandinavian. By the beginning of the 'seventies, there were 19 wood-pulp factories in Sweden, employing 900 men, and

exporting products to the value of 1,000,000 kroner; in 1880 the value had increased to 2,000,000 kroner, and it has since risen still higher.

At the beginning of the 'seventies, the match manufacture already employed 3,500 people in thirty factories, and the value of the product was 4,400,000 kroner, of which 3,600,000 represented exports. At the beginning of the 'eighties the number of workmen had grown to 4,900, and the value of the exported product to 8,300,000 kroner. Matches were exported principally via Hamburg and London, from which points they were distributed over the entire world.

The manufacture of paper had at the close of the 'sixties employed 1,800 persons in sixty-three mills, with a product valued at 4,000,000 kroner. Ten years later, forty-one mills were employing about 3,000 persons, and turning out 8,000,000 kroner in product. About half of this amount was exported, and Swedish paper was already widely and favourably known.

The manufacture of cement was started in these years, and brick-yards made an extremely rapid growth. Superphosphate production also was begun in 1871, and has since been greatly extended. Among the other chemical industries, the manufacture of explosives should be named. The dynamite factory founded by Nobel in 1864 is the oldest in the world. The great metal and machine works likewise developed considerably at this period, and progressed more and more toward a typical special manufacture. Among the new establishments in this branch of production should be named the A-G Separator and Atlas Machine Factories, also the great iron-works, ' Domnarfvet ', in Dalarne, which is at present the most considerable in Sweden; the Sandvikens iron-works, &c. This industry made especially rapid strides in the decade of the 'seventies, when it employed a considerable amount of foreign capital. At the close of the decade a disastrous reaction set in, and many plants were forced to cease operations.

The Swedish foreign trade became thoroughly modernized during the years from 1850 to 1870. Formerly, Sweden had lain outside the stream of the world's trade; after that time modern means of transportation came into use, and a surprising leap marked the transition between the periods 1866 to 1870 and 1871 to 1875. In the first period the total foreign commerce amounted to 260,000,000 kroner, while in the second it was 450,000,000 kroner, or nearly seventy-five per cent greater. The most important foreign trade was carried on with England, Germany, and Denmark. About fifty per cent of the total exports went to England, and about thirty per cent of the total imports came from the same country. To Germany went only seven per cent of the total exports, but twenty-three per cent of the imports came from Germany. Denmark received about ten per cent of the total exports, and sent about eighteen per cent of the imports.

The edict of June 18, 1864, establishing complete industrial freedom, naturally stimulated the growth of shipping, and the number of both sailing and steam vessels increased steadily. In 1860, Sweden had 3,200 ships; sailing ships with a total tonnage of 270,000, and steamships totalling 12,000. Twenty years later, or in 1880, the number had increased to 4,300, the tonnage of sailing vessels to 460,000, and that of steamships to 91,000 tons. Canals were built or enlarged, and good harbours became common. Railways, especially, were extended by gigantic strides, as shown in the table.

SWEDISH RAILWAYS

Year.	*Length of railway lines in kilometres.*
1860	507
1870	1,700
1875	3,600
1880	5,900

A third of the lines were State-owned. Rapid means of communication were bound to be of special importance for

a country like Sweden, with its great geographical extension and sparse and widely-scattered population.

Under the pressure of the hard times, Bills of a protectionist character were introduced into the Parliament at the close of the 'seventies. Among the proposed new duties were, for example, those on bacon, maize, flour, grains, &c. These proposals, it is true, led to no results, but they marked the beginning of the great struggle over the commercial policy which was to continue for ten years, and to end with a change in the tariff system in 1888. In the meantime, extreme financial straits forced the Government to seek new sources of income. In order to produce a balance in the Budget, a Bill was introduced raising the rates of various revenue duties. This was so altered by the Parliament that, in its substitution of the metric system for the old basis of specific duties, a general rounding out in an upward direction was effected in many cases, especially on articles of luxury. In addition to thus raising many duties, the Parliament of 1880, after a fierce struggle, imposed a duty on cheese, maize, and hops, and also subjected wheat flour and some other articles to a so-called registration tax. The general uneasiness on the subject of commercial policy and growing doubt as to the advantages of free trade, found expression at the same time in an address by the Parliament to the king asking for a systematic exposition of the economic condition of the country based on an investigation of the facts.

The majority of the Parliament, however, assumed a waiting attitude, and the next few years brought no change in the tariff policy. Interest in the question was, in fact, not very widespread, and the general wish in the Parliament was to await the results of the changing conditions in other countries as well as the report of the investigations of the tariff committee which had been appointed. At one time it even seemed as though the protectionist movement was subsiding. At the beginning of the 'eighties, the Parlia-

ment rejected various Bills of a protectionist tendency, and on the initiative of the Government the registration fee on wheat flour mentioned above was abolished. Further, the treaties with France and Spain were renewed in 1882 and 1883, though the former was opposed in the second chamber on the ground that it was not desirable to fix the schedules of duties for a period of ten years, as provided in the treaty. Political conditions continued to work in favour of the Government with its inclination to free trade. The agrarian party did not dare to turn against the Government, on whose aid it counted for removing the land-tax.

The new commercial treaty with France was in any case a virtual repetition of the former one. Equality of treatment with French ships was secured for those of Sweden and Norway, which was paid for with quite considerable duty reductions, while those granted in return by France were insignificant. French diplomacy won a second victory, and the real explanation of the fact was again to be sought in the internal political relations of Sweden. The treaty with Spain was important for Norway, because of the reduction in the duty on cured fish, as seventy per cent of the Norwegian exports of the product went to Spain.

Not until the second half of the decade of the 'eighties did active discontent in regard to the tariff question make itself felt. The agitation became more and more pronounced; through the medium of the press it affected the masses of the people, with whom the tariff became from this time on the dominant political question, about which all else revolved. It was, as previously intimated, the economic depression which in these years began to make itself felt in nearly all branches of Swedish industry, that was responsible for the movement in favour of protection. The advantageous industrial situation had passed by several years since, but the political influence of manufactures was too limited to enable them to start a successful opposition to the prevailing commercial policy; opportunity for a stronger opposition

was offered only when the hard times reached agriculture also.

After 1882 the prices of grain began to fall, beginning with wheat and then extending to rye and all other agricultural products. Under these conditions, the agricultural classes, who were not strong enough to endure the hard times permanently, soon showed an inclination to join in the clamour for protection against the importation of Russian and American wheat. On this occasion the fact was of no small significance that the land had been purchased at a time of high prices, and that it now became extremely difficult to make it earn interest on the investment. An additional consideration was the unusually high mortgaged indebtedness with which Swedish agriculture operated [1] (in which respect it resembles that of Denmark). It sheds light on the situation that so heavy a burden of debt, on which interest had to be paid at the rate of from five to six per cent, unquestionably weakened the ability of the landowners to endure any considerable reduction in income. As the crisis which threatened their existence was due to foreign competition, nothing seemed simpler than that they should secure themselves in some degree against that competition by protective duties.

These conditions and the example of the larger nations were to prove decisive for the Swedish tariff policy. A multitude of petitions were introduced into the Parliament, asking for protection on agricultural and manufactured products, while, on the other hand, organizations were formed to combat duties on necessaries. For the protectionist party the national phase of the question was pre-eminent; their slogan was ' Sweden for the Swedes '. After a long struggle, the protectionists became strong enough in 1887 to carry through the second chamber of the Parliament a Bill providing for a duty on cereals and some other articles. But

[1] From 1867 to 1887 the mortgaged indebtedness rose to seventy-one per cent of the value of the farms.

when the Bill was rejected by the Upper House the Government proceeded to dissolve the Parliament, so that the whole question of the future commercial policy could be laid before the electorate for final decision. A monster agitation was now carried on by both sides. But it was due to an accident that the protectionists received a majority at this time, as an error in the conduct of the election led to a falsification of the result in their favour. The struggle of a year between the protective and free trade systems thus ended in victory for the policy of change, and Sweden entered upon the course of tariff policy she has followed ever since.

The new tariff of 1888 imposed a duty of 2·5 kroner per 100 kilogrammes on rye, wheat, maize, peas, and beans; of one krone on oats and vetches, three kronen on malt, and four kroner three öre on all kinds of flour and meal. In addition, duties were placed on horses, cattle, sheep, and hogs, and on beef, bacon, butter, &c., and either new duties or an increase in existing ones were made applicable to the most important manufactured products. Since, however, existing commercial treaties made an increase in many cases impracticable, the Parliament urged the king to appoint a committee charged with the duty of 'reporting on the changes to be worked out in the conditions relating to the customs, which would be necessary in order to afford a reasonable degree of protection to the commerce and industry of the country'. The changes were to be carried out after the expiration of existing tariff agreements. When France herself terminated her treaty with Sweden in 1891, the Parliament was able to put into execution the recommendations of the committee. Among them was the principle that in the future no tariff agreements were to be made.

With the tariffs of 1888 and 1891, Sweden entered the ranks of the countries in which free trade principles had been forced to give way to protectionism. Although the protectionist doctrine in the modern sense was, as we have seen, by no means old in Sweden, it soon became fixed in

the thought of the people, and we have here probably the best proof that the protectionist policy was in some sense the natural one for the country. The Swedish economist, Professor Fahlbeck, is doubtless right in his assertion that protective measures are much more justifiable for countries deficient in capital, and where agriculture is little favoured by nature, even though some of the conditions of a high industrial development are present, than it is for economically strong and wealthy countries. In the first case, economic protection is far more likely to assume a really defensive character, helping the country over the first period of difficulties, and thus taking on an educative significance and working in the direction of making itself superfluous, than is true in the case of a permanent protective policy in States economically favoured by nature from the beginning as well as plentifully supplied with capital.

The revolution in the Swedish tariff policy affected the commercial relations of Norway as well. As stated above, the Inter-Dominion Law of 1874 was based on the assumption that the inequality of the duties of the two countries might be expected to disappear through the progressive application of free trade principles in both. This assumption now became contrary to the facts.

The object of the Inter-Dominion Law had been to encourage a more extensive trade between the two peoples, and at the same time to secure a more effective division of labour and specialization of industry in each. It is not to be denied that the law produced some effect in this direction, perhaps more especially for Norway. But the danger already referred to, of advantage being taken of differences in the duties of the two countries, very soon began to arouse dissatisfaction. The weak point in the law was the broad interpretation to which the concept of ' domestic manufacture ' was susceptible. Foreign partial manufactures, after having ever so little labour expended upon them in Sweden or in Norway,

thereby became naturalized, and passed into the other country duty-free. For example, uncompleted articles on which the duty was lower in Norway than in Sweden, would be slightly worked over in the former country and sent into the latter as Norwegian goods, when they could be sold cheaper than the corresponding Swedish product. Difficulties of this character were necessarily greater in proportion to the amount of difference in the duties on foreign goods coming into the two countries.

The initiative toward a change in the Inter-Dominion Law in a protectionistic direction was taken in an interpellation on the subject in 1885, and a revision of the law followed. In 1887 a differential duty was placed on clothing made from imported fabrics, corresponding to the difference in duty on the material in the two countries. In addition, certain degrees of further manufacture of imported materials were specified as not entitling goods to classification as domestic products. Since, however, the great change which the whole Swedish system underwent in 1888, and in particular the introduction of many new duties on manufacturers' raw materials, greatly increased the difficulties connected with differences in the duties of the two countries, a thoroughgoing revision of the Inter-Dominion Law was seen to be urgently needed. On May 30, 1890, a new Inter-Dominion Law was enacted, but it introduced no really new principle into the method of dealing with trade between the two countries, and proved satisfactory to neither of them. Finally, the dissatisfaction with this new arrangement became so great that in 1895 the Swedish Parliament repealed the law. It was intended that a law better adapted to the changed customs relations of the countries should be drawn up on the basis of a discussion by the interested parties. But in spite of the fact that in both countries an Inter-Dominion Law was fully approved of in principle, the delegates who were appointed failed to reach an agreement and perfect a new arrangement. The explanation is doubtless

to be sought in the strained political relations between the two countries. Thus the law expired on July 1, 1897, without being renewed.

The following table shows the effect of the law on the trade between the two countries:

RATIO OF SWEDISH-NORWEGIAN TO TOTAL SWEDISH TRADE

Period.	*Trade with Norway.* *Per cent of total.*	*Imports from Norway.* *Per cent of total.*	*Exports to Norway.* *Per cent of total.*
1871–5	4·45	5·25	3·49
1876–80	4·44	5·29	3·35
1881–5	5·40	6·46	4·04
1886–90	7·01	8·43	5·27
1891–5	7·20	8·87	5·35
1896–1900	4·55	5·45	3·31
1901–5	5·24	4·42	6·30
1906–10	4·34	3·50	5·38

Since Sweden changed to protectionism, no departure from that system has been made, the application of protectionist principles having been rather extended by subsequent changes in the duties. We shall later return to a consideration of these changes; for the present, the greatest interest in the past quarter-century centres in the specially vigorous economic development which Sweden has experienced, and which in the last decade has placed her among the great industrial nations. Not only can the development of the country in this respect be followed step by step, but the connexion may also be traced between the progress of industry and that of legislation along what might be called mercantilistic lines. The designation would be subject to qualification, however, to the extent that there is a fundamental distinction between the economic policy of the eighteenth century and that of our day, as the policy of the earlier period sought to control material conditions, while to-day the opposite procedure is rather the rule—leaving out of account the interference of the State in economics on so-called ' social ' grounds. In this connexion, nationalism has

played a rôle in Sweden which must not be overlooked, especially since the dissolution of the Union in 1905. Agriculture, it is true, continues to form the leading means of livelihood of the people, about fifty per cent of the population being engaged in that pursuit (fisheries included),[1] but interest still centres predominantly in the development of manufactures. Agriculture, however, is important for manufacturing progress also, on account of its power to feed the ever-increasing population. While in the 'seventies and 'eighties grain formed the principal article of export, animal products have now come to occupy that position. This difference is the result of a corresponding change in agriculture, which has gone over from grain culture to stock-breeding as its principal object. The following table shows the annual trade in grain products, the numbers representing yearly averages for the periods indicated :

ANNUAL TRADE IN GRAIN PRODUCTS

	Imports.		*Exports.*	
Period.	*Million kroner.*	*Per cent of total.*	*Million kroner.*	*Per cent of total.*
1871–5	20	8	37	18·0
1876–80	32	12	39	19·0
1881–5	42	13	29	12·0
1886–90	29	8	18	7·0
1891–5	33	9	15	5·0
1896–1900	35	8	4	1·0
1901–5	49	9	2	0·4
1906–10	50	8	2	0·3

In the above table the effect of foreign grain competition in the 'seventies and 'eighties can be plainly traced in the figures for both imports and exports. The following table shows in the same way the imports and exports of animal products.

[1] In 1870, the per cent of the population engaged in agriculture and fisheries was seventy-two, in 1880 the proportion had fallen to sixty-one per cent, and in 1899 it was fifty-six per cent.

ANNUAL TRADE IN ANIMAL PRODUCTS

	Imports.		*Exports.*	
Period.	*Million kroner.*	*Per cent of total.*	*Million kroner.*	*Per cent of total.*
1871–80	20	8	8	4
1881–5	21	7	19	8
1886–90	17	5	41	15
1891–5	16	5	59	19
1896–1900	22	5	49	14
1901–10	27	5	48	10

In this class of goods butter is the leading item. In 1910 the exportation of butter amounted to 44,000,000 kroner, that of salt herring to 8,000,000 kroner, and of bacon 3,000,000 kroner. At the same date the exports of live stock on foot were 9,500,000 kroner, while imports of the same class were 2,300,000 kroner. In the total foreign trade in agricultural products in 1910, there was an excess of imports amounting to about 10,000,000 kroner.

The area under cultivation was in 1910, 3,600,000 hectares, and the total grain harvest was about 2,600,000 metric tons, exclusive of 800,000 metric tons of sugar-beets. The most important grains are oats, rye, barley, and wheat. The live-stock census in 1910 showed 600,000 horses, 1,800,000 cattle, 900,000 other large animals; 1,000,000 sheep and 1,000,000 hogs. Dairy husbandry has made much more rapid progress in recent years. In all there are 1,700 dairies, of which 500 are co-operative, organized on the model of those introduced into Denmark in the 'nineties.

Forestry also continues to maintain its place among the most important industries of Sweden. The timbered area amounts to 21,000,000 hectares or fifty-two per cent of the land surface. The yearly cutting is estimated at 30,000,000 cubic metres. On the countless streams are floated annually 35,000,000 logs. With regard to the forest policy, protective measures against destructive exploitation have been extended.

The Norrland law of 1906 should be especially mentioned, limiting to some extent the right of corporations to buy up the timber lands of the peasants in the northern part of the country. As the result of such purchase of timber land by the great saw-mills, peasant owners of the region were being steadily transformed into poor and dependent leaseholders, a condition which worked to the great disadvantage of agriculture as well as of forestry itself. In 1901 this condition led to the appointment of the so-called Norrland Committee, and the law was the result of their illuminating report. Later, the law, in common with the other forest-protection regulations (the Dimension-Laws), became the occasion of bitter complaint on the part of the lumbering industry. It was asserted that such regulations crippled the competitive power of the saw-mills in the affected districts and so robbed the forests of their value—thus producing a result opposite to that aimed at.

After the serious depression in the 'seventies and 'eighties, the lumbering industry again worked upward in spite of fluctuating conditions. The value of the exports of timber products in 1910 was about forty-six per cent of the total exports of the country, or 265,000,000 kroner; that of unmanufactured timber was, in comparison with this, of quite secondary importance, amounting to only 18,000,000 kroner. Thus Sweden has succeeded in building up in this field a very considerable industry in working up raw materials before exportation; of the greater saw-mills alone there were 1,200 in 1909.

This encouraging result naturally aroused a wish to follow a similar procedure with another important raw material produced in Sweden, namely, iron ore. It is in fact mining which has been of greatest importance in the economic development of Sweden in the last twenty years. The increase of ore output is shown in the following table:

Period.	*Millions of tons (Annual Average).*
1871–80	0·75
1881–90	0·9
1891–5	1·5
1896–1900	2·3
1905	4·3
1910	5·5

This growth has been due especially to the development of fields of enormous extent in Norrboten (Gellivaare, Kiirunavaare, and Luossavaare) since the construction of the Lapland railway, and has been effected in part with the aid of foreign capital. Conformably with this development, the exportation of iron ore began in the 'nineties to assume larger proportions. At the beginning of the decade it was 200,000 tons yearly; in 1899, 1,600,000 tons, 1906, 3,600,000 tons, and in 1910 the amount had reached 4,400,000 tons, with a value of 43,000,000 kroner.

It will be observed that the exportation of iron ore amounts to a considerable part of the total output. Yet the production of pig iron has also grown, as shown in the following table:

PIG-IRON PRODUCTION

Period.	*Tons annually.*
1870–80	345,000
1881–90	440,000
1891–1900	500,000
1901–5	528,000
1910	600,000

The same period also shows an increase in the making of steel, which was carried on only to an inconsiderable extent down to the end of the 'eighties. In the 'nineties, the average annual production was 200,000 tons; for 1901 it was 270,000, for 1905, 370,000, and for 1910, 472,000 tons. It is to be expected that electric methods of smelting will be of the highest importance for the production of both pig iron and steel, as electricity can be cheaply generated by the enormous

water-power of the country and should offset the lack of a native fuel supply. In 1912, several such smelters have been in operation, and the favourable results have given great promise for the future.

Among other kinds of ore, zinc, silver, lead, pyrites, and others are mined. In 1910, 300,000 tons of coal, worth 2,300,000 kroner were marketed. In the same year there were in all, 13,000 workmen employed in mining and 16,000 in iron smelters.

Politically, the mining industry has in general enjoyed complete freedom in Sweden, by the terms of a law enacted in 1884. This applies to the more important metals, but not to coal. By the law of August 12, 1910, however, the Government affirmed its prerogative in the region of the State mines in the northern part of the country, and the extent of the area referred to, which moreover is very great, was later specified. In a general way the attention of the country is strongly directed toward the great iron ore-beds, and an effort is being made to bring them under State control. The motive is not entirely financial, but also the desire to be able to restrict the exportation of ore in favour of domestic industries in which it could be utilized. It is hoped to prevent a wasteful exploitation from exhausting the ore wealth of the country to the future hurt of its industries. The efforts to assist the growth of Swedish iron-using industries which might compete with those of England, Germany, and Belgium—at present the principal consumers of Swedish ore—have thus turned to the political method of encouragement as well as to direct aid through the introduction of electric smelting and the utilization of water-power already referred to.

Through the regulation of the transportation of ore from the Lapland districts by rail to the shipping ports, the State has had it in its power to control the production to a certain extent. In this way, as well as through the purchase of ore-beds and through the law of 1910, the Government has

been able to carry forward its policy of mine-regulation, and various agreements have been concluded with the Grängesberg Company, the leading owners of mines in Lapland.[1] By the terms of the contract with this company, the total output for the years 1908–32 is limited to a maximum of 75,000,000 tons of ore in the Kiirunavaare and 18,000,000 tons in the Gellivaare district; the State is further recognized as proprietor of a half-interest in the ore-beds, though it comes into the usufruct of its portion only in 1932. After the latter date the State has undisputed title to half the net profit from exportation with the right to take over the Kiirunavaare beds at a price based on a capitalization at four per cent of the average net profit from 1920 to 1929. In addition the companies are bound to reserve for domestic consumption a particularly valuable variety of ore ('A' ore), and further to grant to Swedish producers preferential rights in the purchase of ore. In return, the State is pledged to transport over its railroads in the period of 1908–32, 93,000,000 tons of ore from Kiirunavaare and Gellivaare to the ports of Narvik and Luleå at a reasonable maximum freight charge stipulated in the contract.

These provisions enable the national treasury to acquire a title to valuable assets and they secure to the people a share in the income from the natural wealth of the country, much of which has hitherto been in the hands of foreigners. These conditions afford a typical illustration of State interference in economic affairs from motives of national protection; the most striking example of this policy on the Scandinavian peninsula is the legislation relating to waterfalls (see Norway).

Of the 29,000,000 tons of iron ore which have been exported from Lapland from 1892 to 1911, seventy-four per cent have gone to Germany, seventeen per cent to England, and seven

[1] The Grängesberg Company owns or controls most of the Swedish ore mines; it has a capital stock of 75,000,000 kroner, whose market value in 1912 was over 600,000,000 kroner.

per cent to Belgium and France. Besides those in Lapland there are also extensive iron ore districts in central Sweden, which have been utilized for half a thousand years. These provide principally for domestic needs.

The development of manufactures proper in the recent period is shown in the following table:

MANUFACTURES

Period.	*Factories.*	*Employees.*	*Value of Products (million kroner).*
1881–5	2,900	69,000	185
1886–90	3,200	84,000	290
1891–5	4,200	117,000	316
1896–1900	9,700	238,000	800
1901–5	11,400	271,000	1,100
1910	11,400	302,000	1,603

In the course of the last twenty years the number of factories has trebled, and that of the employees has increased nearly fourfold, while the value of the product has increased over fivefold. The period of 1880–1910 saw the establishment in Sweden of large-scale production. The movement has progressed rapidly, particularly in recent years, and concentration of plants and of capital has taken place extensively. Swedish manufacturing is highly organized and to a considerable degree controlled by mergers, so that in many branches practical monopoly prevails.

Among new industries established in the period under consideration should be named especially that of beet-sugar production from the beginning of the 'eighties, though sugar refineries had existed in Sweden since the eighteenth century. Raw sugar production and refining has grown to be one of the richest and most important branches of manufacture in Sweden; it has also been of the greatest importance for agriculture, in districts where beets are cultivated, especially the Malmöhus district. The production of beet sugar in 1910 was 130,000 tons, and that of the refined product 122,000 tons, which supplied the home demand. In technical

respects, the Swedish sugar production occupies a high rank, the yield being sixteen per cent. The factories are united under a great corporation, the greatest in Scandinavia, with a capital of 125,000,000 kroner. Other new industries were rubber manufacture (making rubber shoes), cement factories, chemical and electro-technical industries (machines as well as instruments), and in the years just past, electro-chemical industries, following upon the utilization of water-power.

Among branches of industry already established, machinery manufacture showed an especially vigorous growth, due in no small degree to important inventions. In general, industries based on patents have come to play a very important rôle, and Sweden offers a fine example of the value to a country of technical skill in the population. This is also connected with the high plane of general culture among the people, which must be regarded as one of the important factors conditioning a high industrial development. Efforts are continuously exerted toward the encouragement of these qualities among the people by means of general and technical education.

Exports of machinery amounted in 1911 to approximately 41,000,000 kroner. Included in this amount were cream separators, 13,500,000 kroner; electrical machinery, 3,500,000 kroner; internal combustion engines, 6,200,000 kroner; hydraulic turbines, 500,000 kroner; wood-working machinery, &c., 2,500,000 kroner; match-machinery, 500,000 kroner; agricultural machinery and implements, 5,000,000 kroner; stone, clay, and cement machinery, 1,300,000 kroner; tools, 1,300,000 kroner; traction engines, 600,000 kroner, and steam turbines, 300,000 kroner. Among exports of instruments, especial mention should be made of telephone apparatus to the value of 4,300,000 kroner. Both the cream separator and telephone manufactures have commercial affiliations over the whole world, and each occupies a commanding position in its field. Such names as de Laval and L. M. Ericsson are written in the world history of modern technology.

The industrial situation in 1910 is shown in the following tables, which include all branches having an annual product of the value of over 10,000,000 kroner.[1]

SWEDISH INDUSTRIES, 1910

Industry.	*Establishments.*	*Employees.*	*Value of Product (million kroner).*
Saw and Planing Mills	1,200	40,000	182
Flour Mills	1,400	4,000	106
Sugar Factories	31	9,000	105
Wood-pulp Mills	160	13,000	96
Iron and Steel Manufactures	660	23,000	94
Textile Mills	160	17,000	88
Machine Shops	460	22,000	82
Spinning Mills	160	11,000	67
Brandy Distilleries	160	1,100	65
Paper Mills	70	8,000	54
Breweries	670	6,000	39
Boot and Shoe Factories	87	7,000	34
Tanneries	240	2,000	29
Metal Goods	260	4,000	27
Furniture Factories	500	10,000	27
Tobacco Factories	110	5,000	22
Oleomargarine Factories	7	450	19
Electrical Works	23	3,300	19
Match Factories	20	7,000	17
Brick and Terra-cotta	400	10,000	16
Shipyards	70	4,100	13
Knitting Mills	55	3,200	12
Rubber Manufactures	9	1,500	10
Glass Works	60	5,000	10
Soap Factories	60	700	10
Super-phosphate Production	6	600	10

[1] Swedish industrial statistics go back to 1739, the date when true factory statistics were first established. Reports submitted each year covered the number of employees, the quantity and value of the product, &c. The system was improved in 1802, when the work was placed under the supervision of the Bureau of Commerce, and since 1830 the annual reports have been published. In the meantime it has come to be generally understood that much of the information, particularly with reference to amount and value of product, was inaccurate, due to want of means of checking. In 1863 a reform was attempted; the Bureau introduced the

The total product for the year 1910 was distributed among the principal groups as shown in the following table:

MANUFACTURED PRODUCTS BY GROUPS

Kind of Factory.	*Value of Product in millions of kroner.*	*Percentage of total.*
Food Products, &c.	437	27
Grain Products, &c.	209	13
Hides and Furs	71	4
Oil, Rubber, &c.	39	2
Wooden Manufactures	334	21
Paper, &c.	66	4
Stone, Terra-Cotta, Peat, &c.	99	6
Chemical substances	37	2
Metal Work	130	8
Ships, Wagons, and Machinery	133	8
Graphics	45	3

The next table gives the figures for the most important single export industries for 1911.

system of report blanks to be filled out by the proprietors of plants and provided with full instructions for this purpose. But the blanks were confusingly drawn up and conclusions based on the reports in consequence largely arbitrary. In 1893 a proposal for another reform of industrial statistics was brought forward, though the system had previously been reorganized on the old lines and fundamentally improved. In 1896 the new system was put in operation. At an earlier date the authorities who were in charge of the collection of the material had undertaken a concentration of the posts; now the entire work was placed in the hands of the Bureau of Commerce, and fines were imposed for false reports. At the same time the field to be covered by the statistics was distinctly specified, the new form taking effect in 1898. With regard to estimating the value of the product, this is defined as the full market value at the place of manufacture. No inquiries are instituted as to the value of raw or partly manufactured materials used. The new system is characterized by clearness and simplicity, the forms are easily filled out and the data consequently definite and easily handled. The great fault of the system is that goods whose manufacture occupies several stages are reported after each new process at their total value. In order to correct this defect special investigations are conducted at longer intervals and their results serve to supplement the annual industrial reports. See further, *Statistiska Komitéens Betänkande*, Stockholm, 1910.

IMPORTANT EXPORTS, 1911

Article.	*Value (million kroner).*
Wood Products (including Matches, 12,000,000 kroner)	265
Paper, Pasteboard, &c.	32
Minerals (unmanufactured): Iron Ore, 43,000,000 kroner; Other Ores, 15,000,000 kroner	58
Minerals (manufactured)	14
Metals	58
Metal Manufactures	19
Machinery, &c.	41
Miscellaneous Manufactures	7
Manufactures of Tar, Rubber, &c.	3

Of the total of 11,400 manufacturing plants in the country, 4,600 with 138,000 employees were located in the cities, and 6,800 with 164,000 employees in the country, while the value of the product was divided with 834,000,000 kroner for the cities, and 769,000,000 kroner for the country. Forty-four per cent of the establishments were owned by private parties, forty-two per cent by independent companies, thirteen per cent belonged to large corporations, and one per cent to the State or communes.[1]

The total mechanical power employed in Swedish manufacturing industries in 1910 was 811,000 horse-power, of which 500,000 horse-power was hydraulically generated. The significance of the water-power for the growth of industry has already been mentioned; in consequence of electro-technical progress in the last few years, it has come to be of the greatest importance for the future industrial develop-

[1] A calculation carried out for the year 1908 places the foreign-owned portion of the total industrial stocks of Sweden at 78,000,000 kroner. Of this sum 20,000,000 kroner were invested in the lumber trade and 19,000,000 kroner in mining and water-power companies. On the other hand, the Swedish capital invested in foreign stocks is estimated at a total of 74,000,000 kroner, with 32,000,000 kroner in the telephone business, 16,000,000 kroner in iron mines, and 17,000,000 in other mining concerns.

ment of Sweden. It is necessary to the understanding of conditions in countries like Sweden and Norway, with their lack of a coal supply, to consider the important rôle played by water-power. The power which can be profitably developed from Swedish waterfalls is estimated at approximately 5,000,000 horse-power; of this amount about 600,000 horse-power is at present utilized. While formerly, as noted, it was principally the saw-mills, flour mills, and iron smelting which profited by the water-power, its greatest importance has come with the development of the electro-chemical and thermo-electric industries, which must be based on cheap power in large supplies. It must, of course, be borne in mind that power is only one of the determining factors in any industry, but it must be an important one in turning the balance against the difficulties which industrial establishments necessarily encounter in a mountainous region, thinly populated, and poor in capital. This is especially true in the case of the industries mentioned, in which the power-bill is so important a factor in view of the large quantities employed. In consequence of these conditions the newly-discovered methods appear to afford to both Norway and Sweden the unexpected possibility of becoming the natural home for such industries, which, moreover, are in their infancy, with possibilities of growth beyond present estimation.

The amount of water-power utilized in Sweden in 1890 was 60,000 horse-power; in 1903 it was 290,000, and in 1912 about 600,000 horse-power. The table shows its distribution among the principal industries employing it.

Utilization of Water-Power

Industry.	*Horse-power employed.*
Milling Industry	80,000
Wood-working	125,000
Paper-working	38,000
Iron and Machinery	25,000
Miscellaneous	205,000

About forty-five per cent of the total value-product of Swedish industry is based on water-power; this figure is the best indication of the importance of the rôle already played by this factor in the national economy. Of especial interest are the chemical industries, which employed 12,000 horse-power in 1904, 18,000 in 1908, 33,000 in 1911, and 60,000 in 1913, while the value of their product increased in an equal ratio. Among thermo-electric and electro-chemical industries the most important are electric ore-smelting and steel manufacture and electric nitrogen fixation, manufacture of saltpetre, of artificial fertilizers in general, of carbide, &c. The possibilities offered by the electric smelting process in building up a domestic iron industry were the occasion of the desire of the Government to limit the exportation of ore.

With regard to governmental water-power policy, the general rule may be laid down that with certain restrictions as to navigation, fishing, the floating of timber, &c., the owner of the land is the owner of the waterfalls; at the same time, the Government has seen fit to exercise its prerogative over certain falls, especially in the northern part of the country. Private ownership has naturally been a great incentive to utilization of the power. But in 1906, the Government put in execution a positive water-power policy, among other things, building large central power-stations. The first of these was at Trollhättan (80,000 horse-power), followed by the plant at Porjus, in Norrland (50,000 horse-power). The latter establishment is to supply light and power for the iron mines in that section, and also furnish motive power for the Lapland ore road (Riksgränsbanen), which is to be converted to electric propulsion during 1914. It is further hoped that the power plants may lead to the establishment of new industries in the thinly-populated districts of the far north.

In addition, other power plants and great impounding lakes are already projected, and with a view to the electrifica-

tion of the State railways the Government has bought up a number of waterfalls in southern and central Sweden at a cost of 5,000,000 kroner. 500,000 kroner were expended on experimental plants in this connexion during the years 1905–7, and in the light of the results achieved, it is only a question of time until the roads will go over to electric propulsion.

In the meantime, as the legal bearings of the waterfall utilization question were much in doubt, a water-rights commission was established in 1906 to draft an up-to-date water-power law. This is now ready, and its adoption is expected in 1914 or 1915. The law will doubtless mean the recognition of private ownership in specified cases and within specified limitations. It is to be hoped that the State will not stipulate advantages for itself in privileges, concessions, &c., as has been the case with Norwegian legislation on the subject (see Norway). In this connexion it is not to be forgotten, however, that the Swedish Government, as previously mentioned, is itself a leading entrepreneur in water-power development, which is not yet (1912) true of the Government of Norway.[1]

While with regard to water-power policy it must be admitted that, in spite of some conflicts between public and private interests, the Government has, on the whole, contributed substantially, in ways both direct and indirect, to the development of the industry, yet the results of State interference in other fields are much more striking. Among other examples should be named the State encouragement in recent years of domestic shipyards as a part of an active and well-planned shipping policy. Without this aid the establishments would ere this have been forced to succumb to the competition of neighbouring countries. A memorandum drawn up by the authorities concerned assumes that

[1] According to an estimate by the Finance Department (for the year 1908) the present value of Swedish waterfalls is 138,000,000 kroner, state-owned sites representing 29,000,000 kroner of this amount and privately owned falls 109,000,000 kroner.

from 1913 to 1922 State aid to the amount of 13,000,000 kroner is to be granted, partly in construction bonuses and partly in the form of contributions toward expense for materials. It is too early to say to what extent the Government's programme will be adopted, but it is beyond doubt that the time is not far distant when the payment of premiums on the building of new ships will be introduced.

In the field of commerce is astir the same active life and the same spirit of enterprise as in manufactures. The table below shows the development of foreign trade.

FOREIGN COMMERCE

Period.	*Average Annual Trade in millions of kroner.*		
	Imports.	*Exports.*	*Total.*
1881–5	317	244	561
1886–90	335	273	608
1891–5	352	318	670
1896–1900	452	358	810
1901–5	533	410	943
1906–10	645	515	1,160

The export trade was principally carried on with England, Germany, Denmark, and France; the import trade with Germany, England, and Denmark.

As a step in the general direction of freeing the trade from the exactions of intermediaries (particularly in Germany and Denmark), much work has been done to further the establishment of direct shipping connexions with foreign countries, especially those beyond the seas. Hitherto the Swedish merchant fleet has, like the Norwegian, plied principally in the tramp trade, but quite recently fixed steamship routes have been established to the more important oversea countries, aided by very substantial State subsidies. In addition to the direct annual subsidies, the Government has established a navigation loan fund of 15,000,000 kroner for the assistance of newly-established routes. The following table of exports to the oversea countries with which direct routes have been established brings out the growth of this

trade in consequence of the measures of encouragement. The figures give the value of exports in millions of kroner.

EXPORTS TO OVERSEAS COUNTRIES

Country.	*Value of Exports (millions of kroner).* 1905.	1908.	1910.
South Africa	4·5	3·8	9·0
East India	3·2	3·5	4·5
China	0·7	0·5	1·4
Japan	0·6	2·3	5·6
Australia	2·7	5·1	8·9
South America	1·7	3·8	6·8
Total	13·4	19·0	36·2

In connexion with the subject of foreign trade, mention should be made of the development of the chamber of commerce in Sweden. There are at present twelve chambers of commerce in the more important cities, while in foreign countries also, Swedish chambers of commerce have been organized, as, for example, in London, New York, and Sydney. In general the country has looked outward for opportunities of increasing its prosperity, at the same time that it has striven for the development of its natural resources at home. The greatest efforts are put forth, not merely to keep fully abreast with every line of progress which appears in the world market, but as well to take every step that may tend to assure the maintenance of an advanced position. These efforts, too, in common with those directed toward the material development of the country, are supported by an unusually aggressive business public opinion, and this seems to have taken on an especially energetic and far-sighted character since the withdrawal of Norway from the former union.

The vigorous growth of foreign commerce has, of course, been favourable in a high degree to the Swedish merchant fleet. In 1880, the tonnage of sailing vessels reached its culmination with 460,000 tons, against 90,000 of steamships. The displacement of sailing craft in the world's commerce

led, in the decades of the 'eighties and 'nineties, to a stagnation in the growth of Sweden's merchant fleet as a whole, as the increase in steamships was insufficient to overbalance the rapid decline in sailing-ship tonnage. After the 'nineties, however, the critical point had been passed in the difficult and costly change from sail to steam navigation. The table below gives the progress of the movement.

THE SWEDISH MERCHANT FLEET

Year.	*Sailing vessels. Tons.*	*Steamships. Tons.*	*Total. Tons.*
1880 . .	461,000	91,000	552,000
1890 . .	370,000	140,000	510,000
1895 . .	302,000	181,000	483,000
1900 . .	288,000	325,000	613,000
1905 . .	263,000	460,000	723,000
1910 . .	177,000	593,000	770,000

Of corresponding significance for domestic trade is the extension of the railway network. The total length of the railway lines is 14,000 kilometres, or over 2·5 kilometres per 1,000 of population, which gives Sweden the first rank among European countries. The live question in this field at present relates to the projected roads in the northern part of the kingdom (the Inland Railway). This enterprise will open for development vast stretches of forest and great waterfalls, in addition to the fact that there are in the region affected 100,000 hectares of tillable land, only waiting for the hoe and the plough. The canal system also is constantly improved and extended; in particular, a very considerable extension of the Trollhättan canal was decided upon in 1909, by which the inland industrial centres will be made accessible to sea-going vessels. Excellent and modern harbours have likewise been laid out, and the law of 1907 makes possible the establishment of free ports. It is expected in particular that the free port system will mean much to the cities of Gothenburg and Malmö, especially for their competition with Copenhagen.

We have already had occasion to emphasize the significance of nationalism in the recent economic development of Sweden. A striking expression of this movement is seen in the efforts to favour home industry. Efforts in this direction are manifested in 'Swedish Weeks', associations, expositions, national marks for goods and the like, while the press is by no means the least important factor in the movement. A substantial result of these endeavours is that the home market for Swedish products has been considerably extended in the past few years; this applies particularly to textile manufactures and household goods in general.

All efforts have thus far failed to reduce emigration to inconsiderable proportions. The number of persons emigrating per year for different periods is shown in the table which follows.

SWEDISH EMIGRATION

Period.	*Average annual number of Emigrants.*
1886–90	40,000
1891–5	32,000
1896–1900	17,000
1901–5	29,000
1906–10	22,000

The amount of emigration fluctuates according to economic conditions. Its extent continues to cause uneasiness, and various means are employed to combat it. In 1907 an Emigration Committee was appointed to investigate its causes, and to suggest preventive measures. Up to the present, however, positive results of this work seem not to have been considerable. The fact apparently is that not even the enormous growth of industry has been able to offset the effects of the extreme climatic disadvantages under which agriculture is carried on, especially in the northern part of the country. The discussion of the question has at least had the effect, as already mentioned, of arousing the nation to reflection, and in spite of the dark

side of the question it is probably entitled to no small share of the credit for the spirit of earnest work which has been the cause of the great national development.

In the period which has elapsed since the great change in the tariff system in 1888, there have, as already noted, been no considerable alterations made. The later tariff edicts and the laws of 1892, 1895, 1897, 1898, and 1904 have been chiefly formal renewals. Of all these, only the law of 1895 carried important provisions; the duty on grain had been temporarily reduced on account of a short-crop year in 1892, and this measure increased the duty on grain (formerly kroner 2.50) to kroner 3.70, and that on flour (formerly kroner 4.30) to kroner 6.50. Two edicts of 1903 should also be mentioned, raising the duty on spirits and sugar coming from countries with a premium on exportation of those articles.

An important politico-commercial question was solved by the acceptance of the Swedish-German commercial treaty of May 8, 1906. Its significance lay especially in the fact that Sweden entered into a tariff agreement which during the term of the treaty limited in essential respects her power over customs relations; such an action marked a complete break with the principles previously followed. At the same time the treaty disposed of one of the most vital economic questions of recent years, that relating to the export duty on iron ore, which Germany had opposed by every means in her power. As compensation for giving up the export duty, Sweden received present security for its stone industry and cabinet work and for its exportation of beer, the production of which has grown rapidly, and for which Germany has furnished one of the leading markets. In 1906, Sweden also concluded commercial treaties with Russia and Portugal. These, however, were not tariff agreements, but merely the common most-favoured-nation treaties with certain modifications.

The commercial treaty of 1906 between Sweden and

Germany was renewed in 1911, with some changes, and its term extended to 1917. In view of the negotiations for the new treaty, a new tariff law had been enacted in 1910, to take effect on the expiration of the then existing agreement. By it the protective features of the tariff were much strengthened, the object being to afford as wide as possible a margin of negotiations for the new treaty. As the new agreement made it necessary for Sweden either to give up or to modify many features of the increases determined upon or to introduce a differential system applying to Germany, it was deemed advisable to revise the newly-enacted tariff before it went into effect.

The new customs law, which finally took form in 1911, contains many special duties—1,325 in all, against 740 in the tariff of 1906—and is as unmistakably protectionist in tendency as formerly, though, as already mentioned, a significant reduction from the schedules adopted in 1910 is to be noted in the instances where such changes were involved by the new treaty. It is of great importance that the new law has insured a stability in the duties hitherto vainly sought for in Sweden; the treaty with Germany largely fixes the permanence of most of the rates for the term of the agreement. In this respect the law marks a great advance over conditions in 1906. The new treaty again guarantees duty-free exportation of iron ore, as this was the principal point in consideration on the German side. In the same connexion, Sweden further binds herself for the term of the treaty to make no change in the agreement between the Government and the mining companies which would limit or hinder the exportation of ore.

III. NORWAY

In Norway, as in Denmark, with which it was politically united down to the year 1814, mercantilistic principles were abandoned at the close of the eighteenth century. The cause was in part the general change in dominant economic opinion which set in at this time, and in part the great prosperity enjoyed by Danish-Norwegian commerce and shipping in the period from 1776 to 1807.

The customs edict of 1797 (see Denmark) marked for Norway also a decisive break with mercantilism. This important and, for its time, uniquely liberal regulation had been preceded by still earlier ones, all aiming at a loosening of the bonds which had in so large measure impeded free industrial development. Thus in 1788 was abolished the Danish grain monopoly, which gave Denmark exclusive right to supply southern Norway with cereals. Again, in 1789 the trade of Finnmarken and Iceland was freed from restrictions, and in 1793 the bonded-warehouse system was introduced; in 1795 the restrictions on timber-cutting, among others, were also abolished, but on the other hand the concession system for saw-mills, for example, was retained, assuring the privileged mills, to a large extent, a local monopoly in return for an annual concession fee to the State.

The permanent state of war, in which most of Europe and America as well found themselves at the close of the century, naturally placed the commerce and shipping of the few neutral countries in a position to reap enormous harvests. By virtue of the neutrality agreement of the northern powers this situation was profitable, in by no means a negligible degree, to the Scandinavian countries (cf. Denmark

and Sweden). The Norwegian merchant fleet, which in 1792 had numbered approximately 860 ships of 110,000 tons, had grown in 1806 to 1,650 ships, and a total tonnage of 180,000. At the same time, exports—particularly of timber and fish—not merely increased in quantity, but the prices received for exported goods also rose rapidly. In 1805 the timber exportation reached its culmination with 1,250,000 cubic metres. Under these conditions prosperity was general in Norway, and the towns experienced a flourishing growth. An index of conditions is afforded by the customs receipts, which increased from 460,000 Rix-dollars in 1767 to 1,270,000 Rix-dollars in 1806. A considerable manufacturing industry also profited by the situation, as did also mining. The principal branches of the latter to be carried on were copper, silver, and iron mining; copper and iron smelting were also especially prosperous.

But this flourishing period came to a sudden termination when Norway and Denmark were drawn into the war by which they had been profiting. First, the war with England broke out in 1807 (see Denmark), and to this was added war with Sweden in 1809. General disaster overtook the country; the merchant fleet was broken up by the enemy's warships; business was paralysed; the oversea connexions —the great arteries of Norway's economic life—were severed. Property values were wiped out, and all sources of income were impaired. With the interruption of grain importation, which had amounted to from seven to eight hundred thousand hectolitres annually, actual famine ensued, the domestic grain production being insufficient for the needs of the people. Suffering was especially severe in the year 1809. The situation was the result of various quite natural conditions, climatic and geological, but was particularly attributable to the great extent of the country and its deficient means of communication, which impeded any considerable trade between the grain-producing districts and the country at large. During the war, over 500 Norwegian ships were lost,

and great numbers remained as dead capital scattered about in blockaded foreign ports.

From 1807 to 1814, it is true, the hardships of the situation were somewhat abated by the so-called navigation licences. As England could do without Norwegian timber only with as great inconvenience as Norway suffered through deprivation of foreign goods, Norwegian ships were given letters granting safe conduct through the English blockade lines. But neither this circumstance nor privateering, profitable as was the latter, sufficed to relieve the general poverty. In 1812, crop-failure was added to the other misfortunes, and in 1813 the Government declared itself bankrupt (cf. Denmark). Manufactures, whose growth had been stimulated under the mercantilistic régime by an almost prohibitive protection, special privileges, &c., included, at the end of the eighteenth century, brickyards, oil-mills, sugar refineries, paper-mills, cork, pottery, dye-stuffs, textile and cannon factories, salt and glass works, &c., and enjoyed considerable prosperity. Now, however, manufactures were obliterated, and almost a generation was to pass before they began to revive.

It was thus under desperate conditions, economic and financial, that Norway began its history as an independent nation in 1814. The people were reduced to poverty, the great commercial houses of the eighteenth century had gone into bankruptcy, trade relations with foreign countries had been broken off in the long period of the war, and the monetary situation was frightfully disorganized. Conditions improved but slowly after peace was established. The Norges Bank was founded in 1816 to encourage the economic reconstruction, but not until 1842 did its notes reach par.

In the field of tariff legislation, a strongly protectionist policy continued to dominate. The country had, it is true, broken with actually prohibitive principles, which were definitely abandoned in 1821; but a great deal of the old mercantilistic spirit was still alive. In the 'twenties and

even in the 'thirties several actual increases were made in the duty rates. The common duty on manufactured goods was thirty per cent *ad valorem*. But it was soon to become manifest that the ' unprotected ' industries were the ones of future significance for the national economy ; manufactures showed a constant tendency to vegetate, and the same was true of mining which had been overtaken by a noticeable decline. After the middle of the 'twenties, timber exports began again to move upward and soon surpassed in value even the abnormal exportation of the war-years. At the same time exports of fish were increasing rapidly, and in 1820, seal and whale fishing were begun in the Arctic seas ; the latter were an important source of wealth for several cities, especially Tönsberg. Along with these movements went a revival of commerce and shipping.

Under such circumstances the losses in ship material were gradually repaired, and forestry, fisheries, and navigation were seen to be the best and most natural sources of income for the country ; the same state of affairs was to continue for a long time in the future and soon began to have its influence on the Norwegian tariff policy. In regard to forestry regulations, the saw-mill privileges were modified in 1818 in that forest owners were granted the right to erect mills which paid no fees, though only for working up specified timber products. In 1835 the tonnage of the merchant fleet again reached the figure of the year 1806 (180,000 tons), and in 1850 it had grown to 300,000 tons, distributed among 4,300 vessels. Strong encouragement for the shipping was afforded by the Inter-Dominion Law (*Zwischenreichsgesetz*) of 1827 with Sweden (see also Sweden), by the terms of which Norwegian ships took over a considerable part of the timber exports from the Swedish Baltic ports.

These conditions now led to a change in the tenor of the tariff policy, and an encouragement of navigation through commercial treaties was attempted. A committee was appointed in 1839 to prepare for a general tariff reduction.

The result of its work was a lowering of the duties on all raw materials together with a smaller reduction in the tax on manufactured goods, the duty on this class of articles being cut to about twenty-five per cent. By the law of 1842, practically all trades restrictions were done away with, guild regulations having been already abolished in 1839.

After about 1850, economic relations in Norway were again on a sound basis. With the English change to free trade, and especially the repeal of the Navigation Act in 1849, new fields were opened for Norwegian commerce and shipping; a little later the Crimean War brought prosperous times for neutral shipping, from which Norway reaped large profits. Timber exports rose from 600,000 cubic metres in 1845 to 1,400,000 cubic metres in 1855 and 2,000,000 in 1865. The absence of forestry regulations was here, as in Sweden, of the greatest significance for the lumbering industry, which now developed a thriving business in the improvement of timber products, and indeed for the whole wood trade. Complete freedom in this field was established with the repeal of the last restrictions in 1836. In the same direction tended the extensive sale of the State forests at this period, and also the sale of the communal forests (*Bygdealmenningerne*), following the law of 1848. The utilization of the forests was now entirely unrestricted until in the second half of the century, when it again became necessary to protect them against wasteful exploitation. By laws enacted in 1854, the last remnant of the sawing privileges was repealed. The system had been introduced, it should be stated, not merely on fiscal grounds but for the purpose of conserving the forests and maintaining the quality of the export product. It had now become an obstacle to the free development of the timber industries, and was forced to succumb to the new liberal economic tendencies.

We now turn to agriculture, which, while not so distinctly the leading industry as in the case of Sweden and Denmark, has yet always played an important rôle in Norway in

a political way and in the thought of the people, as well as in a purely economic sense. At the period we are discussing it was principally concerned with extending the cultivated area. Thus from 1820 to 1829 about 13,000 hectares of new land were brought under the plough, and from 1845 to 1855 about 58,000 hectares were added. Besides grains, potatoes formed the principal crop. The yield in millions of hectolitres for typical years is shown in the table.

Agricultural Products

Year.	*Grain (million hl.).*	*Potatoes (million hl.).*
1835	2·1	3·77
1845	4·1	5·6
1855	5·4	6·9
1865	5·1	7·5

The production of grain, however, was not sufficient to supply the needs of the country, and by the middle of the century 1,500,000 hectolitres were annually imported. Grazing was also carried on and feed for stock was grown. The number of animals increased notably, especially that of the cattle, of which there were 650,000 head in 1835, 850,000 head in 1845, and in 1855, 950,000; after 1855 the number remained nearly constant for the rest of the century. By the middle of the century there were 150,000 head of horses, 1,500,000 sheep, 350,000 goats, and 100,000 hogs. These numbers also remained remarkably constant during the second half of the century.

Fisheries likewise developed, and fish exports increased notably, thanks to the opening of many new markets. Norwegian cured fish found a sale not only in southern Europe but in South America, the West Indies, and other Catholic regions.

In spite of high protective duties the financial disorganization and general poverty which followed the great wars did not, as already noted, afford conditions for the renascence of manufactures. Not until the 'forties and 'fifties did a spirit

of enterprise revive in the manufacturing field. Establishments of considerable proportions and strong vitality were then founded in the textile industry (*Nydalens Fabriker*) in machine building (*Nyland mek. Værksted, Akers mek. Værksted*), in spinning, &c. These are to be regarded as marking the real beginning of the extensive manufacturing industry of the country at the present day; to such a degree had the commercial paralysis at the beginning of the century obliterated the manufactures established in the mercantilistic period. From this time on, too, as noted above, wood manufacturing proper developed, the products of the forests being exported in a more and more highly improved state. In 1850, this branch employed in all 12,700 persons, of whom 3,700 were in the towns; in 1860 the numbers had grown to 19,700 and 7,500 respectively.

Mining resumed its development somewhat earlier than did manufacturing. The Kongsberg silver fineries in particular were in a flourishing condition by the beginning of the 'thirties, and at the same time the iron smeltries enjoyed a final period of prosperity, their product being in exceptional demand. The production of pig iron was 9,750 tons per year from 1840 to 1850, 9,000 tons from 1850 to 1860, and 6,500 tons from 1860 to 1870. The output of ore for the year 1850 was 23,000 tons. The total value of the products of mines and smeltries combined at this period was about 1,500,000 kroner annually.

From 1851 on the free trade tendency began definitely to get the upper hand in Norway. This result followed in part from the great importance of the country's shipping, fisheries, and lumber trade, as sketched above, the value of the timber and fish exports alone being for 1860 nine-tenths of the total exports; in part also, the dew movement in economic thought spreading outward from England began to make its influence felt. In 1851, 1854, and 1857, successive reductions were made in the duties on cotton goods, metal goods, grain, meat, bacon, &c. In 1858 a new committee was

appointed to revise the tariff, and its deliberations inclined toward the view that the exclusive object of customs duties is to provide revenue for the public treasury.

Thus a revenue tariff system was inaugurated which was to settle the character of the Norwegian tariff policy until the close of the century. At the same time it was emphasized that transition from the protective to the revenue system was to be effected with caution. The reductions adopted by the Storthing, the Norwegian Parliament, related chiefly to cotton goods, dye-stuffs, metal goods, paper, hides, and various wooden manufactures, while nearly all raw materials were placed on the free list. Simultaneously with these reductions, which carried with them a falling-off in the customs receipts of over a million kroner annually, the rates were increased for numerous other goods, such as coffee, sugar, tobacco, brandy, and petroleum—in short, for the usual revenue articles.

The introduction of the new system met with no great opposition. The fisheries and shipping, the lumbering and related export industries had no interest in the protective duties, and other industries which may have felt such an interest were still too weak to exert effective influence. The interests of the country accordingly centred rather in the question of free entry into foreign markets, and in this connexion the commercial treaty with France was significant. This agreement forms a typical example of the concessions granted to foreign countries by Norway as to duties on manufactures in order to secure a market for her own products or new fields for her shipping activities. The economic situation of Norway at that time made it both comprehensible and natural that she should be one of the earliest countries to follow the example of England in going over to free trade principles.

The commercial treaty of 1865 with France, and later that with Spain, were of even greater significance for Norway than for Sweden. Norwegian shipping had previously suffered

much from the unfavourable treatment accorded ships of that nationality in French ports, and besides, Norway was deeply interested in the Catholic countries on account of her cured fish exportation. Consequently there was the greatest readiness to grant extensive tariff concessions for the sake of securing a treaty favourable to the shipping. (For details as to the negotiation and conclusion of the treaty, see under Sweden.)

The number of maximum rates fixed in the treaty was 158. The most important reductions effected related to glass, porcelain, paper, pasteboard, leather, confectionery, textiles, and metal goods. Against these, the French concessions were the same as those for Sweden. Of especial significance for the Norwegian fish exports was the reduction in the duties on fish, whale-oil, and whalebone. The relief granted to navigation did not after all place it on an equality with that of France; the longed-for complete equalization was not secured for Swedish-Norwegian ships until 1866, when it followed as a result of the most-favoured-nation treaty of France with Austria. The satisfaction with the treaty in Norway was none the less extraordinarily great, as was not unnatural in view of the fact that it was chiefly Swedish manufactures that had to pay for the advantages obtained for the shipping of the united countries (as already explained in the section on Sweden).

The succeeding period witnessed further progress in the reduction of the tariff rates, and strenuous efforts were made both to eliminate the protective rates from the treaty and to simplify the latter as much as possible. In Norway, as in Sweden, and perhaps in a still higher degree, the prosperous times contributed to place the adoption of the liberal system in the light of a boon to the country. About the year 1870 the following leading articles were placed on the free list—machinery of all kinds, matches, cork goods, rubber goods, and many iron and steel articles. At the same time new reductions were put in force for great numbers of metal,

textile, and manufactured articles. In addition, the duties on grain and flour were much reduced, and butter was made duty free.

In 1873 the Norwegian tariff finally received practically the general form which it was to retain without substantial change until 1897. The tendencies finding expression in the tariff were consistently in the direction of free trade. Duties were transferred chiefly to such articles as were not produced competitively by home manufacture. The extent to which this was true is most clearly shown by the proportion of the total customs receipts which was derived from such duties at different dates. In 1847 such articles had yielded thirty per cent of the total customs revenue, in 1875 they produced fifty-five per cent, and in 1886 fully sixty-six per cent, while in the same period the total itself had doubled. That the process stopped at this point and the system was not transformed into one of absolute free trade was not due to any lack of inclination to take such a step, but simply to the fiscal importance of the customs taxes as a source of revenue for the Government. This dependence of the Government upon the customs revenue was a consequence of the abolition of the more important direct taxes as far back as 1838. At the close of the 'forties the customs receipts already made up seventy-five per cent of the national taxation revenues, and this proportion remained unchanged down to the end of the century. The duties on coffee, tea, sugar, tobacco, and illuminating oil were successively raised until the rates were so high that it was considered unsafe to continue farther the concentration of the State taxes upon these particular articles. Expedients which were practicable in a rich country with a widespread use of luxuries (such as England, for example) required handling with greater care in a poorer country, like Norway, if the system was not to end in failure.

The new liberal views were also of the greatest importance in carrying through the 'Inter-Dominion Law' of 1874,

which (as stated under Sweden) proceeded on the assumption that progress would continue in the direction of greater and greater commercial freedom. A committee was appointed in 1874 to draft a new Inter-Dominion law and also a new treaty with France, and in addition, on the basis of both, to revise the customs schedules. The committee's Bill, submitted the next year, stated as its aim ' to purge the Norwegian tariff of every rate which involved the risk of affecting productive relations in a protectionist direction '. The Bill was rejected by the Storthing, however, and opposition to it was quite determined. In Norway, too, it now became evident that conditions were no longer wholly favourable to free trade ideas, though the reaction in legislation presented itself much later here than in other countries.

The hard times which swept over the country at the close of the 'seventies contributed in a high degree to further the protectionist tendency in manufacturing circles and in the trades. In 1879 a petition was laid before the Storthing from the Artisans' and Manufacturers' Association, asking for protection for domestic industries. In consequence a new tariff commission was appointed, but the majority of the members were favourable to free trade (though only eight against seven), and the result was that the changes proposed were not of a pronounced character. Hence the new tariff law of 1881 was of no great significance for the business of the country.

The protectionist movement thus called into being was rooted in the development of Norwegian industrial life. The change from sailing vessels to steam navigation, and from a less to a more intensive agriculture, created a need for larger employment of capital. The same was true of the lumbering industry as it grew into an important branch of manufacture, and even of the fisheries with the introduction of modern vessels, appliances, &c. A similar situation appeared in other industries also. But if capital was to be forthcoming for the new industrial developments it was

essential that it should be rendered secure. Hence the wish, and in a sense the necessity, of protection against overwhelming competition from foreign countries.

The emigration question came to be another important factor in the issue between free trade and protection. Before 1850, emigration from Norway had been insignificant. After this time, however, and especially after the American Civil War, it increased by leaps and bounds until, in 1869, it reached a temporary maximum of 18,000 yearly. In the prosperous years of the 'seventies followed a decrease to approximately 8,000 per year, the minimum being reached in 1877 with 3,200. In the succeeding period of business depression in Norway agriculture and lumbering were seriously affected. One of the consequences of the depression was another ascending movement of emigration, and in 1882 the number of emigrants reached 28,800. It goes without saying that such a state of affairs aroused the greatest concern and furnished material for the protectionistic agitation.

We have previously referred to the important rôle played by shipping in the economic life of Norway. The large income earned by the ships in foreign freight service was a principal item in the commercial balance-sheet of the country. The following table shows the gross freights earned in typical years:

GROSS FREIGHT EARNINGS

Year.	*Million kroner.*
1865	53
1870	71
1880	98
1885	83

Of the gross freight earnings at least one-half can be credited as net income for the country. The size of the commercial fleet in number of ships and tonnage is given in the table below.

MERCHANT FLEET

Year.	Sailing Ships. Number.	Sailing Ships. Tons.	Steamships. Number.	Steamships. Tons.	Total Tonnage.
1875	7,600	1,350,000	218	46,000	1,400,000
1885	7,150	1,450,000	510	114,000	1,600,000
1895	6,300	1,280,000	915	320,000	1,500,000

In these decades railroad building likewise made great strides, and the railways and steamship lines, and also new and improved highways, were of the greatest importance for the internal and external business of the country. For timber transportation, too, the streams played and continue to play the same important rôle as in Sweden.

The vigorous development of manufactures was shown in the increase in the number of industrial workers from 19,700 in 1860 to 33,000 in 1870, but at the close of the 'seventies a reaction set in in this field. In consequence of the change from wood to iron as material for ship construction, the depression was sharpest in wooden-ship building, and thus indirectly in the whole lumber and wood-working industry and timber exportation. Timber exports reached a high point in the years 1870–5 with 2,300,000 cubic metres annually, then fell off in the second half of the decade to 1,700,000; they rose again in the 'eighties to 1,900,000 cubic metres, at which point they remained until 1905. After the reaction the number of industrial workers did not resume its upward movement until several years had elapsed, reaching 42,000 in 1885. After this time the utilization of the enormous water-power of the country made rapid progress, as turbines came into common use. The influence of this change was especially pronounced in the flour-milling and lumbering industries and in the newly established wood-pulp manufacture. The exports of wood-pulp and cellulose rose from 8,500 tons, with a value of 700,000 kroner, in 1875 to 90,000 tons, worth 5,600,000 kroner, in 1885. Another new industry was the match manufacture, which also rapidly

developed an export trade, as shown in the following table:

EXPORTS OF MATCHES

Period.	*Annual Exportation (million kilogrammes).*
1876–80	1·2
1881–5	2·9
1886–90	4·5

In the 'sixties, the old iron smeltries of Norway, chiefly small establishments, were forced to succumb to pressure from large-scale producers abroad, with which they could not profitably compete. In the next decade, their average annual production was only 1,500 tons, and in the 'eighties it fell to 700 tons. The exportation of ore similarly fell away, dropping in the 'eighties to 2,000 tons annually and by 1890 to the vanishing-point. Up to that time Norway had exported in all 3,500,000 tons of iron ore, of which amount about 2,330,000 tons came from the Arendal district. Silver production also came to a standstill at this period, due in part to large-scale production in oversea lands, and in part to the falling price of silver, which in turn was partly traceable to the large production, but also in part to the general change from bimetallism to the gold standard and demonetization of silver in the great nations. In compensation for these declines the business of the copper smeltries grew apace and new exports were started, as, for example, those of pyrites and nickel. The last-named soon lost its significance, but the production of pyrites and copper developed considerably, thanks to the discovery of rich deposits in northern Norway. The largest copper mines were those of Röros and Sulitelma, the latter first opened in the decade of the 'eighties. The value of the output of copper and pyrites was 1,000,000 kroner annually in the 'fifties, 2,500,000 kroner at the close of the 'sixties, and by 1875 reached 2,800,000 kroner, at which figure it remained nearly constant until the next great upward movement at the close of the 'nineties.

As to the forest policy, there existed as early as 1863 various restrictions on the rights of forest owners to dispose of their property at will. Effort was being made to secure a more rational utilization of the forests, and the prevention of waste of this great source of national wealth was progressively carried into effect. After the 'sixties the Government began buying up forests, and during the remainder of the century about 2,000,000 kroner were expended in this way, with the result that approximately 1,600 square kilometres of timber land became the property of the State. In addition, other sums were applied in encouraging private forest culture. Exports of fishery products amounted in the second half of the 'seventies to an average of 43,000,000 kroner annually. This amount remained constant until the 'nineties, when it rose to 45,000,000 kroner.

Grain production was about 5,200,000 hectolitres in 1865, about 6,000,000 hectolitres in 1875, and 5,300,000 in 1890, while in the same period the total yield of potatoes increased from 7,500,000 to 8,400,000 hectolitres. As previously stated, the numbers of live stock did not materially change after the year 1850. As a result of the stationary position of grain production, importation of that commodity increased considerably in the second half of the century. Imports for 1850 were 1,500,000 hectolitres; for 1870, 2,500,000; and for 1890, 4,500,000. Other agricultural products as well were extensively imported, notably beef and pork.

The tariff of 1881 already discussed did not bring a final settlement of the question at issue; continued hard times and the example of other countries every year gave new strength to the movement in favour of protection. The centre of this movement was the Norwegian Association of Manufacturers and Industrial Workers in Christiania. The programme of the organization called for the transfer of duties from articles not produced in the country to those so produced, and it was endorsed by many artisans' associations, labour unions, and municipal authorities. Finally, in

1886, the agitation resulted in the appointment of a new committee with instructions to undertake a revision of the tariff. In this committee, as in that of 1878, there were eight advocates of free trade and seven opponents of the same policy. The two factions submitted separate reports in 1888. The Government showed itself in substantial agreement with the majority of the committee, but, in view of the depressed condition of agriculture, agreed to a small increase in the duty on wheat (from 22 öre to 1 kr. per 100 kilogrammes) and on wheat flour (to 2.10 kr.). The Government itself proposed a duty of 10 öre per kilogram on butter, which had been on the free list, and one of 4 öre on oleomargarine and fats. On the whole, however, the alterations made in the customs rates at this time amounted to no general or fundamental change in the system, and the same was true of the modifications effected in 1890. At the latter date the duties on coffee and sugar were somewhat reduced. Export duties were gradually abolished. Not until the middle of the 'nineties, however, was the Storthing induced to appoint a parliamentary commission to work out a tariff with the definite object of affording protection to the industries of the country. The occasion of its action was the negotiations relating to a new Inter-Dominion Law and the repeal of the old measure.[1] The change in attitude was brought about by the growth of the protectionist movement, which tended more and more to gain the upper hand and was notably furthered by the certain prospect of the repeal of the Inter-Dominion Law. The growing political tension between the united countries and the strong separatist tendencies in Norway were thus an influence hardly to be overestimated. The latter nation was asserting with increasing vigour her claim to complete political independence and to the economic self-sufficiency pertaining thereto. The nationalistic tendency has been throughout of the greatest importance in both Norway and Sweden, especially since the separation in 1905,

[1] With regard to the circumstances see also under Sweden.

and that with respect not merely to the tariff policies of the two countries but to the general character of their business public opinion as well.

In 1896 a committee of the Storthing declared that, 'inasmuch as the present Inter-Dominion Law is to be replaced by the establishment of a customs line, the claim of Norwegian producers for higher protective duties to secure to them the domestic market is undoubtedly asserted with greater emphasis.' The Parliamentary Tariff Commission appointed the same year was thus clearly instructed to draft a frankly protective tariff, and the final step was made all the more abruptly after the previous period of hesitation. The result of the committee's work was the tariff law of 1897, which, following the example of France, enacted dual schedules with maximum and minimum rates, and with a complex specialization of duties. The maximum rates were applicable to such countries as had no commercial or shipping treaties with Norway, and which treated Norwegian goods or Norwegian ships less favourably than those of other nations; they were also to be applied to goods the rates on which had previously been fixed by tariff treaties as soon as the latter expired. But results soon showed that such retributive tariff provisions, or in fact a maximum-minimum tariff in general, was of little significance in the hands of a small country. The maximum rates were never applied in practice, as the effect would have been to the great damage of Norway herself. In consequence, an amendment of the law was adopted in 1904, giving the Government discretionary power in the application or non-application of the maximum rates.

Moreover, the new law itself was less protective in character than the committee's draft had been, as it had undergone modification in the Storthing. But the movement had begun, and was not to be thwarted or checked. A Departmental Tariff Committee, appointed in 1903, was instructed to 'continue in the direction marked out in 1897, and propose

such changes as should afford to domestic products a more adequate tariff protection than had been provided by the previous revision '.

The efforts to develop the natural resources of the country, with especial reference to the mineral wealth and the enormous power of the waterfalls, assumed a more definite and intelligent character as it became clear that progress in this direction was already taking place, and that further developments were practicable. At the same time, public interest in the economic relations of the country was aroused. It was felt that these relations could be and must be improved, in order, among other reasons, to stem the still enormous tide of emigration. In this connexion the unfavourable balance of trade also played an important rôle; the excess in value of imports over exports for the period 1876 to 1890 had averaged only about 50,000,000 kroner per year, while for the period 1891 to 1895 it was 79,000,000 kroner, and by the years 1896 to 1900 the average reached 120,000,000 kroner. Nor was it considered possible that the difference was offset by the earnings of the shipping in foreign service, as this had not increased in corresponding proportions. The gross freight for 1890 was 113,000,000 kroner; for 1895, 93,000,000 kroner, and for 1899, 129,000,000 kroner. This factor received such emphasis at the hands of the Tariff Committee that it may be said to have formed the basis of its whole point of view. The committee drew thence the conclusion, 'that the times demanded in Norway a change to a more rationally administered system of protection as a direct counterpoise against corresponding measures long since enacted by foreign nations'. Yet at the same time the necessity for moderation in connexion with this protectionism was also emphasized.

The committee's Bill contained numerous increases in duties on agricultural products—60 öre on oats and 50 öre on potatoes per hundred kilogrammes, increases on pork, vegetables, flour, &c.—and also on manufactured articles,

especially textiles, leather, hides, various iron and metal manufactures, &c. The total increase was estimated at over 3,000,000 kroner, but at the same time it was proposed to reduce the duty on sugar from 20 to 15 öre per kilogramme, from which it was expected that a tariff loss of 1,700,000 kroner would ensue. This reduction met with opposition on the part of the Government, which also opposed the new duties or increases on potatoes and meats, contending that the needs of the farmers for protection had been fully met in 1897. In addition, the Government advocated considerable reductions in the duties on manufactures called for in the Bill. On this occasion, however, the protectionist sentiment in the Storthing showed such strength that the Government's Bill was rejected, and that of the committee was accepted on May 12, 1905, by a vote of 67 to 46. The law was, it is true, enacted provisionally, but no arrangement was made for the reimbursement of any duties paid in case of a future lowering of the rates. In the final Bill, too, the Storthing accepted the Government's provision for retaining the old duty on sugar, though for purely fiscal reasons; on the whole the law, as enacted, resembled the committee's Bill much more closely than it did that of the Government. It went into effect August 8, 1905.

In Norway as in Sweden, it is not merely the customs relations themselves which are of interest, but to a much greater degree the rapid industrial development, and the measures that have been taken by the Government to further and to regulate this progress. In this connexion the nationalist-protectionist movement has pushed itself into the foreground in every field, and nowhere more conspicuously than in water-power legislation. This movement is most intimately connected with the extraordinary importance to the country of the rôle which foreign capital has come to play in Norway, particularly in the industries most dependent on water-power utilization.

Agriculture has made relatively little progress in the past

twenty years, quantitatively viewed, the natural limitations on its expansion in Norway being narrow. Yet a considerable area of new land has been brought under the plough in that time, and the State has liberally supported the development of the industry by reclamation works, contributions toward the draining of submerged lands, &c., especially along the Jäder. Cheap loans have also been granted to encourage small holdings and the like. At the agricultural census in 1907 the cultivated area was estimated at 4,500 square kilometres, in addition to which there were 3,600 square kilometres of natural meadows. The census showed the following numbers of live stock :

Live Stock in 1907

Animal.	*Number of Head.*
Cattle	1,100,000
Horses	172,000
Sheep	1,400,000
Goats	296,000
Hogs	318,000
Reindeer	142,000

The total value of agricultural products between the years 1900 and 1910 rose from 200,000,000 to 220,000,000 kroner. In all, thirty per cent of the population are employed in agriculture. Dairying has made most notable progress. In 1895 there were 481 dairies in Norway, while in 1905 the number was 810, chiefly co-operative establishments on the Danish plan. In 1911, butter to the value of 3,300,000 kroner was exported, besides condensed milk and cream worth 10,000,000 kroner. As an offset to this was an importation of grain products, amounting to 67,000,000 kroner, and of animal products to the value of 16,000,000 kroner. Another great stimulus to agriculture was afforded by the establishment of agricultural schools with public grants, &c. The progress of the co-operative principle has, with the exception of the dairies, been slower in Norwegian agri-

culture than, for example, in the Danish, but some co-operative purchasing organizations are active.

In recent years, forestry has made rapid strides. Twenty-one per cent of the total area of Norway, or 69,000 square kilometres, is wooded. The effort to protect the forests against destructive exploitation and to promote rational forest culture has been energetically pushed. The law of 1893 conferred on the communes the right to regulate the utilization of private timber tracts within their borders, and the law was re-enacted in 1908. As soon as a communal ordinance is approved by the king it has the force of law. Such ' forest ordinances ' have been passed in 170 *Herreden*, or political districts. All are based on the ' dimension principle ', forbidding the cutting for sale or industrial use of trees under a specified size. A law of 1908 further limited the duration of cutting contracts in the interest of the forests.

In 1909 was passed a timber concession law (see below for other such enactments). By this law, foreigners and both Norwegian and foreign corporations, and in part Norwegian citizens, must have a permit from the Government in order to purchase more than 100 hectares of timber land, though the law specifies that financial considerations shall not be allowed to influence the drawing or granting of such concessions. The law further grants the local government the right of refusal over timber tracts in case of sales where a permit is required. These regulations set somewhat narrow limits on the former right of free purchase and sale of timber land. They have naturally been the object of much criticism, in common with the other concession laws (cf. below); it is contended that such regulations reduce the commercial value of the forests, and work injury to the lumbering industry.

Of State forests there are in all 8,600 square kilometres, and in 1910 the net income from these was 1,500,000 kroner. In the past few years—also in consequence of the law referred

to—a strong tendency to the purchase of communal forests has become manifest; of these there are now 120,000 hectares.

After the crucial period through which the lumber trade passed in the 'eighties, exports of such goods again rose, and the proportion exported in manufactured form increased steadily. In the last few years another decrease has taken place, due to the fact that larger and larger quantities of wood are consumed in the manufacture of cellulose and wood-pulp. The yearly exports of wood from 1890 to 1905 averaged about 1,900,000 cubic metres, falling by degrees to 1,200,000 cubic metres in 1911. The value of the exports fell from 43,000,000 kroner in 1900 to 34,000,000 kroner in 1911. At the same time, exports of cellulose and wood pulp rose from 5,700,000 kroner in 1885, to 15,400,000 in 1895, 27,600,000 in 1905, and 40,400,000 in 1911.

Fisheries also maintain their place among the principal sources of wealth in the country; modern fishing craft, steamships, and motor-boats, have been purchased in recent years. The public treasury offers cheap credit for the purchase of vessels and equipment. The number of fishermen is about 90,000. Exports of cured and fresh fish amounted to 45,000,000 kroner in 1895, 49,000,000 in 1901, 58,000,000 in 1905, 90,000,000 in 1910, and 98,000,000 in 1911.

The canning industry, which is connected with Norwegian fish production, is of large extent and is making rapid progress. The value of exports of canned fish, which reached significant proportions only in the 'nineties, was 2,000,000 kroner in 1901, 3,300,000 in 1905, and 15,000,000 in 1911. Norwegian canned fish have successfully engaged in competition with French sardines and other such goods. In 1905, whaling was forbidden in northern Norway, in the interest of other fishing, but since that time Norwegian initiative in whale fishing has thrown itself with astonishing success into other waters of the Arctic and Antarctic

seas and elsewhere. The net earnings of the industry for the country were estimated in 1910 at 15,000,000 kroner.

Manufactures proper have made great advances in which the utilization of the enormous water-power of the country has played an important rôle. The number of industrial workers (including miners) was 45,000 in 1885, 60,000 in 1895, 86,000 in 1905, and 110,000 in 1909. In the 'nineties the country was favoured with a flourishing industrial development, which, however, was terminated by a depression about 1900. After 1904–5, another upward movement could be detected, and this has become more pronounced in the last few years. Among branches which have made the largest growth should be named paper, wood-pulp, and cellulose mills, textile, iron, and metal manufactures, and the chemical and electro-chemical industries. In 1909 the number of actual manufacturing establishments was about 3,800, and that of their employees about 104,000. The table gives the figures for the more important branches.[1]

NORWEGIAN MANUFACTURES, 1909

Group.	*Establishments.*	*Employees.*
Mining	40	5,500
Stone	196	5,700
Metals	142	4,700
Machinery	270	19,000
Chemicals	63	4,000
Illumination	211	3,400
Textile	215	11,000
Paper, Leather, and Rubber	191	14,000
Wood Manufactures	1,000	15,600
Food Products	1,100	14,500

The value of exported manufactured products was 44,000,000 kroner in 1896, 55,000,000 kroner in 1902, 78,000,000 in

[1] True industrial statistics were first undertaken in Norway in 1909 and their compilation is not yet (1912) complete.

1906, and 121,000,000 in 1911. The following table gives the value of the principal exports:

NORWEGIAN EXPORTS, 1911

Goods.	*Value of Exports (million kroner).*
Wood-pulp and Cellulose	40·0
Paper	21·0
Ores	10·0
Carbide	7·0
Zinc	3·5
Aluminium	3·0
Matches	2·1
Cyanide	2·0
Norwegian Saltpetre	1·5
Nitrate	1·4
Nitrite	1·1

The majority of these are entirely new goods in Norway, their production being dependent chiefly on the water-power development. The exports of such products alone (principally of a chemical and electro-chemical character) was in 1911, 29,000,000 kroner.

The water-power problem[1] is so intimately connected with the recent industrial development of Norway that a discussion of it in some detail may not be out of place here. The utilization of water-power itself in the service of industry is of course nothing novel. Its importance in the lumbering and other industries, particularly after the general introduction of turbines in the 'seventies and 'eighties, has already been mentioned. But in Norway, as in Sweden, it was the successful development of electro-technology at the close of the century, making practicable the transmission of electrical energy over long distances, and especially the rise of the new electro-chemical and electro-metallurgical industries in recent years, which directed serious attention

[1] In regard to the importance of water-power for the Scandinavian Peninsula, see also under Sweden.

to the significance of the water-power, and so created new possibilities for the industrial development of Norway.

The power contained in the waterfalls of Norway, and which may profitably be utilized, is estimated at from five to six million horse-power. Of this amount, 600,000 horse-power are already utilized, as against 146,000 horse-power in 1900, and 300,000 in 1907. By way of comparison, it may be noted that the total steam-power used in Norwegian industries is 110,000 horse-power. Measures have been taken toward regulating the use of about 700,000 horse-power, but, in contrast with Sweden, the Norwegian Government takes almost no direct active part in the utilization. Aside from the purchase of a single large fall for the purpose of development, it has taken a hand in the waterfall question only by way of legislative control.

Unfortunately, there are no official data on the waterfalls of Norway similar, for example, to those already given for Sweden, but some figures may be cited. Electric power plants, including both private and public establishments, used in the years indicated the following quantities of power: 1907, 53,000 horse-power; 1908, 163,000 horse-power; 1909, 180,000 horse-power; 1910, about 190,000 horse-power. The increase is to be attributed exclusively to the utilization of water-power. The total power in use in the industries of the country in 1910, the latest year for which figures are available, was about 560,000 horse-power, of which about 110,000 horse-power represented steam, and 450,000 horse-power, water-power. The electric plants are not included in the figures, having been omitted to avoid double counting. Further, the statistics do not strictly separate water- and steam-power by industries. Some power-consumption figures for typical 'water-power industries' are given in tabular form below, but it must be borne in mind that plants generating their own power are not taken into account.

Power in Water-Power Industries

Industry.	*Power consumed (horse-power).*			
	1907.	1908.	1909.	1910.
Large-scale Electro-chemical Manufacturing . .	8,800	40,000	60,000	200,000
Carbide Works . . .	29,000	59,000	57,000	64,000
Wood-working . . .	94,000	108,000	113,000	118,000
Cellulose Mills . . .	19,000	27,000	30,000	
Wood-pulp and Paper Mills .	12,000	19,000	22,000	24,000
Flour Mills	21,000	23,000	23,000	23,000

In addition to the above, saw-mills consumed in 1910 a total of 55,000 horse-power. Everywhere great progress is manifest, which in the case of the industries under discussion, is undoubtedly to be attributed to the utilization of the water-power.

Water-power is of especial importance in connexion with the development of electro-chemical manufacturing, which has become famous through the great saltpetre factories at Rjukanfoss. By a process which is the invention of the Norwegians Birkeland and Eyde, calcium nitrate is here manufactured from atmospheric air. These gigantic works now use 200,000 horse-power of water-power. The exports of Norwegian nitrate and its derivatives were in 1910, 3,700,000 kroner, and in 1911, 6,000,000 kroner, and, according to estimates, will soon amount to from 12,000,000 to 14,000,000 kroner per year. Further, the notable production of carbide, zinc, aluminium, &c., is, as already stated, chiefly based on water-power. The same force has recently made possible in Norway, as in Sweden, the use of electric smelting processes both in extracting iron from the ore and in the manufacture of steel. The electrification of the State railways is likewise projected, and the first step in that direction has already been taken in the transformation from steam to electric propulsion of the stretch from Christiania to Drammen.

Water-power development has been greatly furthered by

the complete freedom of private enterprise in this field; from 1887 to 1909 the right of private ownership of the falls was fully recognized in Norway. But about the year 1906 decided unrest was manifested with regard to the water-power question. The problem was complicated; Norway had a large emigration and considerable excess of imports over exports, both of which conditions urgently demanded the development of her natural resources. For this purpose the capital wealth of the country was too small, and foreign capital to a considerable amount had gradually been invested in the Norwegian water-power industry. On the other hand there was the nationalistic side of the question and the natural reluctance to see the wealth of the country in the hands of foreign capitalists. Moreover, water-power legislation had to take account of the corporation system, and provide against the formation of trusts and monopolization of the country's water-power. In addition to these conditions an out-and-out socialistic sentiment arose, with insistence on the view that valuable national assets, such as the waterfalls, should belong to society as a whole, and that the nation and the communes should profit by their utilization. After much wrangling a solution of the problem was finally reached in the so-called ' Concession Law ' of September 18, 1909. By the terms of this statute only the Norwegian Government, Norwegian communes, or Norwegian citizens are permitted to acquire waterfalls of over 1,000 horse-power without first securing a concession. That is, a concession is required for the purchase of waterfalls by foreigners and by both foreign and Norwegian corporations. The conditions which must be fulfilled to obtain a concession are as follows: (1) It may be stipulated that Norwegian capital is to be granted a share in the development works and that native labour shall be preferred as far as possible. (2) The development shall be begun within a specified time (five years) after the granting of the concession. This condition, with several others of similar import, is aimed to guard against the

purchase and holding of power sites for speculative purposes by preventing them from lying undeveloped after purchase. (3) The purchaser is further prohibited from entering into any sort of agreement as to the price of electrical energy. By this means it was hoped to prevent price monopolies and combinations. (4) The concessionary is obliged to furnish five per cent of the power to the commune in which the fall is located, at a price fixed within narrow limits, and is further bound to furnish eventually to the general Government another five per cent at the same rate. But the most important condition of all is (5) the time limit of the concession. By this provision the concession is granted only for a period of from sixty to eighty years, after which time the waterfall and all the utilization works, including finally the power-station and machinery, revert *without compensation* to the State. Similar regulations, moreover, apply to the sale of electric power in greater quantities than 500 horse-power, and in the case of such sale the concession is subjected to an annual tax of not more than 1·25 kroner per horse-power.

A later law of August 4, 1911, contains among other provisions, corresponding regulations pertaining to the water-courses and designed to secure rational utilization as to raising the water level in lakes, construction of dams, &c. It also subjects concessions to a tax of from 10 öre to 1 krone payable to the commune and an equal amount payable to the State.

In these laws Norway has embarked on a course closely approaching the privilege policy of mercantilism (cf. earlier saw-mill privileges). The system has naturally been criticized on this account in many quarters, and not least by the manufacturers. It has been asserted that such harsh conditions, which have been designated as indirect expropriation without compensation, would frighten away foreign capital from the water-power industry to the irreparable damage not merely of manufactures but of the national economy as

a whole. The fact is undeniable that the foreign capital invested in recent times in Norwegian undertakings has been of the greatest importance for the striking economic development of the country and that every branch of industry has profited as a result. On the other hand, the nationalistic phase of the question is not to be overlooked, and the following table, showing the proportion of foreign ownership of Norwegian corporation stocks in 1909, clearly proves that the question of the influence of foreign capital creates a real problem for the country.

FOREIGN CAPITAL IN NORWEGIAN CORPORATIONS, 1909

Industry.	*Corporation Stocks Owned Abroad.* *Million kroner.*	*Per cent of total.*
Mining	25·0	80·0
Metal Manufactures	2·3	32·5
Chemical Industries including Electro-chemical Plants	40·0	85·0
Illumination Industry	10·0	47·0
Paper Manufacturing	32·0	44·0

In all, the foreign-owned portion of the capital stock of Norwegian industrial corporations in the above year was estimated at 115,000,000 kroner, or thirty-eight per cent of the total capitalization of 300,000,000 kroner. This is a very considerable amount and it has undoubtedly increased since, in no small degree, in consequence of the development of large-scale electro-chemical manufacturing in the past few years. Furthermore, no account has been taken in the above figures of capital borrowed in foreign countries, which is certainly no small amount.

Concerning the effects of these laws, it is in fact too early as yet to speak positively. They do not seem thus far to have produced the threatened interruption of water-power development; but it must be added in this connexion that nearly all the great establishments which now arouse interest in the Norwegian water-power industry are based on power-site purchases made before the Concession Law went into

effect and to which its restrictions do not apply. A further circumstance to be noted is that the share of the communes in water-power development is here, as in Sweden, of great importance.

Mining has made an especially notable growth in Norway in the last ten years. With respect to iron ore, the output now comes chiefly from deposits in the northern districts which were not known to exist twenty years ago (Sydvaranger, Dunderlandsdalen, Salangen, &c.). The region is estimated to contain over 350,000,000 tons of iron ore, which, however, is of lower grade than that of Sweden and hence requires considerable working over in order to become available for smelting purposes. The productivity of the mines is thus conditioned on the use of an advanced technique, but this has been to a large extent introduced, or is projected, in the form of magnetic separators and the like. In 1910, 2,000,000 tons of Swedish iron ore were exported from the Norwegian port of Narvik. With a view to the establishment of a Norwegian iron industry, the Government in its contract with the Swedish mining company reserved refusal rights at Narvik prices over ten per cent of all the ore exported via that port. In central and southern Norway also there are extensive iron ore deposits, estimated at millions of tons. Great hopes are therefore entertained for a rich development of the iron-smelting industry in Norway. During the last few years the value of the ore exports has fluctuated between 1,600,000 and 300,000 kroner, but is certain to increase notably in a short time.

Hitherto, as already mentioned, the production of copper and pyrites has been the most important branch of mining in Norway. The value of the output, which was about 3,000,000 kroner at the close of the 'nineties, rose steadily to about 8,000,000 kroner in 1909. In the same year the copper-smeltries turned out a product worth 1,700,000 kroner. The total exportation of ores from Norway in 1911 was 10,400,000 kroner, exclusive of refined copper to the

value of 1,500,000 kroner. With regard to the mining legislation, the policy of free private enterprise which had obtained before 1909 was brought to an end in that year with the enactment of a concession law. The conditions provided for the granting of concessions in mining were similar to those in the case of waterfall development, and in addition a production tax may be placed on ore to the amount of three per cent of its value. In 1909 the mining industry furnished employment in all to 6,000 persons.

Norwegian shipping has maintained its place as a significant factor in the national economy, and this in spite of low freight rates which have worked to the disadvantage of the industry. Its earnings are also an important item in the commercial balance-sheet. The merchant fleet represented in 1900 a total tonnage of 1,500,000, divided between steamships, with 500,000 tons, and sailing vessels, with 1,000,000. After that time the total tonnage increased somewhat, but later fell back once more until in 1910 the figure was again 1,500,000 tons, now divided between 900,000 for steamships and 600,000 for sailing vessels. The gross freight earned by the shipping in foreign service is shown for different years in the table.

FREIGHT EARNINGS OF NORWEGIAN SHIPPING

Year.	*Gross Freight (million kroner).*
1890	113
1895	93
1901	124
1905	115
1909	131

Formerly the shipping, consisting mainly of sailing craft, was principally employed in the tramp trade; in recent years, however, regular routes have been established, especially with oversea countries, and these enjoy substantial State subsidies. The total foreign trade is given for the periods indicated in the table below.

NORWEGIAN FOREIGN TRADE

	Average Annual Trade (million kroner).		
Period.	*Imports.*	*Exports.*	*Excess of Imports.*
1881–5	158	115	43
1886–90	165	119	46
1891–5	211	132	79
1896–1900	281	161	120
1901–5	295	190	105
1906–10	384	263	121

The significance of the sharp increase in the excess of imports after 1890 has already been discussed in connexion with the tariff relations of the country. To understand this trade balance it is necessary to take account of the many 'indirect' sources of income outside of exportation of goods; such are the earnings of the shipping in the foreign service, of the whale fisheries (see above), and the large and ever-increasing tourist traffic, the proceeds of which are estimated at approximately 20,000,000 kroner per year. The imports in 1910 were distributed by percentages among the different countries as follows: from Germany, thirty per cent; England, twenty-four per cent; Sweden (including transit trade), twelve per cent; United States, seven per cent; Russia, six per cent; Denmark, five per cent. The exports of the same year were similarly distributed as follows: to England, twenty-nine per cent; Germany, nineteen per cent; United States, nine per cent; Sweden, seven per cent; Belgium, four per cent; and France, four per cent.

Norwegian emigration, which, as already mentioned, reached a high point at the beginning of the 'eighties, decreased with the coming of better times, amounting in the period 1891–5 to 12,000 annually, and from 1896 to 1900 to 7,000. The business depression which came at the turn of the century brought with it another increase to 21,000 yearly in the period 1901–5. The numbers for subsequent years have been as follows: 1906, 22,000; 1907, 22,000; 1908, 8,000; 1909, 16,000; 1910, 19,000. The significance of this very considerable emigration in connexion with the

endeavour to further the industrial development of the country has already been referred to, and also the narrow bounds which nature has set to the power of agriculture to employ an increasing population. The population of Norway has increased during the last century from 900,000 in 1800 to 1,400,000 in 1850, 1,700,000 in 1870, 2,000,000 in 1890, and 2,400,000 in 1910. The total length of railway lines was in 1909 about 3,000 kilometres. Among the newer railway enterprises of especial importance should be named the Bergen-Christiania line, which connects the eastern and western parts of the country.

The foregoing affords a discussion in dry figures of the economic development of Norway in the last few decades. But figures are after all only figures, and to give a true picture of the economic movements in modern Norway it is necessary to go outside of the realm of figures and include all factors having significance for the picture. The same movements which have pushed themselves into prominence in Sweden in recent years are met with again in Norway. The national rebirth in 1905 has here had its great significance, greatly strengthening the interest of the people in the material uplift of the country. The working spirit and eager confidence which now animate the nation will surely be not without great influence on the economic development of the future. By technical and trade schools the effort is made to increase the industrial efficiency of the population, and Norway has recently founded its first polytechnic institute. With respect to preference for domestic workmanship, the movement has attracted the attention of the entire nation, and many branches of industry owe to it favours at the hands of the State in the form of public contracts, &c. But the Government not only affords to industries such indirect assistance, but direct subsidies are also granted for the establishment of new shipping lines, such as the Emigration line between Norway and the United States of America and others. In this respect again, Norway offers an example of the ' neo-mercantilistic ' system.

INDEX

Africa, Danish trade with, 12.
A-G Separator and Atlas Machine Factories, 54.
American competition, effect of, on the agricultural countries of Europe, 19.
Arendal district, iron ore from, 96.
Artisans' and Manufacturers' Association, 93.
Australia, Swedish exports to, 78.
Austria, commercial treaty with Norway and Sweden, 91.

Baltic, the, 12, 14.
Belgium: trade with Norway, 114; Sweden, 67, 69.
British North America, English trade with, 34.

Cattegat, the, 12.
China, Swedish exports to, 78.
Christiania, 97.
Commerce, Bureau of (Sweden), 71–2.
Concession laws, 103, 109–11, 113.
Continental blockade (1809), results of, 13, 33, 34.
Copenhagen: centre of trade, 11, 12, 14, 15, 79; china industry, 11, 28; English attack on, 13; establishment of free port at, 30.
Crimean War, effect of, on neutral shipping, 87.

Dalarne, iron-works in, 54.
Dalsland, lumber industry of, 41.
'Dansk Arbejde', 30.
de Laval, Gustav, 51, 70.
DENMARK:
  agricultural products: exports, 13, 16; excess of exports over imports, 21; imports, 11; value of exports, 22.
  agricultural reform, 11, 12.
  agriculture, 11 ff.; crisis in, 13; extensive and intensive, 19, 24, 28; population engaged in, 22; state encouragement of, 23.

DENMARK:
  animal products, exportation of, 18, 19; value of exports, 21; excess of exports over imports, *ib.*
  beet-sugar production, 28.
  beverages, exportation of, 29.
  bonded-warehouse system, 12.
  brandy distilleries, 11.
  building trade, employees in, 26.
  butter production, 16, 19; exportation of, 14, 16, 22; value of exports, 21.
  cattle, exportation of, 12, 14, 16, 18, 22; head of, 16, 19.
  cement manufacture, value of, 27.
  cereal products, excess of imports over exports, 21.
  chemicals, exportation of, 29; number of employees engaged in manufacture, 26; value of products, 27.
  cloth manufactures, 11.
  coffee-roasting, value of products, 27.
  coinage system, 32.
  commerce, 12 ff.; foreign and transit trade, 30; trade with principal nations, *ib.*; treaty with Sweden, 38.
  commercial policy, 25; *see also* tariff policy.
  confectionery trade, numbers employed in, 26.
  co-operative establishments, 19, 20, 22, 64.
  customs of the monarchy, unification of the, 15, 17; customs edict (1797), 83; customs law (1908), 25; customs treaties, 17; *see also* tariff policy.
  dairy farming, 19; co-operative dairies, 22, 64; manorial dairies, 16.
  decoratives, employees engaged in manufacture of, 26.
  eggs, exportation of, 20, 22.
  electric cables, value of, 27.
  export duties, 11, 12; abolished, 17.

DENMARK :
exports and imports, 11–16, 18, 20–2, 29 ; prohibition of exports, 11, 12.
factories, 17.
farm implements and tools, manufacture of, 24, 28.
farms, size of, 12, 18, 19 ; value of, 23 ; *see also* small holdings.
fertilizers, exportation of, 29 ; manufacture of, 28.
feudal services, abolition of, 12.
fishing industry, 22, 31.
flour-mills, 11.
food products, manufacture of, 26, 28 ; value of, 27.
forestry, 31.
free trade, 14, 24, 25, 29.
glass industry, 27.
grain, duties on, 11 ; exportation of, 12, 14, 15, 16, 18 ; importation of, 20–1 ; monopoly abolished, 83 ; prices of, 18, 19 ; production of, 19.
harvests, value of the, 22.
' high schools ', 23.
hogs, exportation of, 14, 16, 18, 20, 22 ; number of, 16, 19.
horses, exportation of, 14, 16, 18, 22 ; number of, 16.
industrial development, 17, 83 ; census, 26 ; employees in various industries, *ib.* ; ' industrial ' agriculture, 20–1 ; trade schools, 16 ; relative importance of industries, 27 ; value of products in special industries, 27.
iron manufactures, 15, 28 ; exportation of, 29.
labour-saving machinery, 15.
leather products, number engaged in manufacture of, 26 ; value of, 27.
letter postage, 32.
live-stock : exports, 14, 16, 18, 20, 21, 22 ; head of, 16.
loans for farming, 23.
local monopolies, 15.
machine industry, 28.
machinery, value of exports, 29 ; of products, 27.
manufactures, development of, 24, 25, 29 ; value of exports, 29.
mercantile doctrines, 11, 12, 83.
metal goods, value of, 27.
DENMARK :
metal-working industries, 24 ; employees engaged in, 26 ; value of products, 27.
middle-men, displacement of, 20.
milk, exportation of, 21.
minerals (cements, &c.), exportation of, 29.
monetary system, 13, 14.
mortgage credit system, 18, 20, 23.
motor-ships, construction of, 28.
national banks, 14.
oil, oil-cakes, &c., exportation of, 29.
oil-meal, production of, 28.
oil-mills, value of products, 27.
oleomargarine, manufacture of, 28 ; value of products, 27.
packing industry, 28.
paper and graphic arts, value of products, 27.
paper production, employees engaged in, 26.
peasants' farms, 23 ; *see also* small holdings.
porcelain, &c., exportation of, 29.
porcelain works, 11.
pork trade, 19 ; exports, 21, 22.
poultry, exportation of, 22.
protection, 12, 15, 17, 24, 25.
railways, development of, 24, 31.
scientific institutes, 23.
serfdom, abolition of, 12.
sheep, exportation of, 18, 22 ; number of, 16.
shipping, 13, 15, 31 ; tonnage of the merchant fleet, 31.
ships, exportation of, 29.
shipyards, 27, 28.
shoes, manufacture of, 27.
slaughter-houses, co-operative, 20, 22.
small holdings, 18, 19, 23.
smuggling, 11.
stock-raising, 18, 23.
stone and glass manufacture, employees engaged in, 26 ; value of products, 27.
sugar production, 11, 24 ; exports, 29 ; value of products, 27.
tanneries, 11.
tariff policy, 12, 14, 15, 17, 24, 25, 29 ; schedules, 17, 25, 26.
taxes on land, 13.
technical education, 28.

DENMARK:
textile manufactures, 11, 24; employees engaged in, 26; value of products, 27.
timber products, numbers employed, 26; value of products, 27.
tobacco manufacture, value of, 27.
trade with Norway, 114; Sweden, 38, 43, 55, 77.
transit duties, 17.
war of 1864, 17, 24; war with England (1807–14), 13, 84.
Departmental Tariff Committee (Norway), 99, 100.
'Det Asiatiske Kompagni', 12.
'Det forenede Dampskibsselskab', 31.
'Det Owenske Vaerksted', 36.
Dimension Laws (forest protection), 65.
Dunderlandsdalen, iron-ore deposits in, 112.

East Indies, Danish trade with, 12; Swedish exports to, 78.
England: effect of the English free-trade movement on Norwegian commerce, 87, 89, 92; navigation policy, 33, 87; trade with Denmark, 15, 18, 20, 22, 30; Norway, 87, 114; Sweden, 33, 34, 37–9, 55, 67, 68, 77; treaty with Sweden, 38; war with Denmark and Norway (1807), 84, 85.
Ericsson, John, 43, 70.

Fahlbeck, Professor, on economic protection, 60.
Falun Mine (Sweden), 35.
Finnemarken, trade of, freed from restrictions, 83.
France: commercial and shipping treaties with Norway, 45–7, 90–1; Sweden, 45–7, 52, 57, 59; trade with Norway, 114; Sweden, 69, 77.
Free trade, *see under* Denmark, Norway, Sweden.

Gellivaare district, iron ore from, 66, 68.
Germany: commercial treaties with Sweden, 81–2; sanitary regulations of, 20; trade with Denmark, 18, 20, 21, 30; Norway, 114; Sweden, 55, 67, 68, 77.
Gothenburg, centre of trade, 40, 79.
Grängesberg Company (Lapland), 68.
Gripenberg, Baron J. A., 44.

Hamburg, trade of, 14–17.
Holstein, Duchy of, industrial development in, 14, 17.

Iceland, trade of, freed from restrictions, 83.
Inter-Dominion Laws (Norway and Sweden), 38, 44, 48, 60–2, 86, 92–3, 98, 99.

Japan, Swedish exports to, 78.
Jönköping, match factories at, 42.
Jutland, trade of, 14, 15, 22.

Kongsberg silver fineries, 89.
Kürunavaare district, iron ore from, 66, 68.

Lapland: iron-ore deposits and exports, 41, 68, 69; railway facilities, 66, 67, 75.
Lübeck, trade of, 14.
Lulea, port of, 68.
Luossavaare district, iron ore from, 66.

Malmö, centre of trade, 79.

Napoleonic wars, effect on trade of, 33, 37, 39, 83.
Narvik, port of, 68, 112.
Navigation Act of 1651 (English), 33; repeal of, 87.
Nobel, dynamite factory founded by, 54.
Norges Bank, 85.
Norrboten, development of iron-ore production, 66.
Norrköping, cloth factories at, 42.
Norrland Committee on forest protection, 65.
Norrland, lumber industry in, 41, 51–2; power-station, 75.
NORWAY:
agricultural schools, 102.
agriculture, 85, 87, 88, 94, 98, 100, 115; cultivated area of land,

NORWAY :
102 ; duties on products, 100–1 ; importation of products, 97 ; numbers employed in, 102 ; value of products, 88, 102.
aluminium production, 108 ; value of exports, 106.
animal products, importation of, 102.
beef, importation of, 97.
bonded-warehouse system, 83.
brick-yards, 85.
butter, value of exports, 103.
canning industry, value of exports, 104.
cannon factories, 85.
carbide, value of exports, 106 ; water-power consumed in works, 108.
cattle, head of, 88, 102.
cellulose manufacture, 105 ; exports, 95, 104 ; value of exports, 106 ; water-power consumed in mills, 108.
chemical industries, foreign capital invested in, 111 ; number of establishments and employees, 105 ; value of exports, 106.
climatic conditions, effects of, 84.
commerce : abolition of trade restrictions, 87 ; balance of trade, 100 ; bankruptcy of commercial houses in the eighteenth century, 85 ; effects of the continental blockade and of the great wars, 34, 83, 85, 88–9 ; total foreign trade, 114.
commercial treaties : with France, 46–7, 90, 91 ; Spain, 57, 90.
concession laws, 103, 109–10, 111, 113.
co-operative organizations, 102–3.
copper mining, 84, 96, 112 ; value of output, 96, 112.
cork manufacture, 85.
corporation stocks, 111.
customs duties and regulations, 38, 45, 83, 84, 86–9, 90–3, 97–101 ; *see also* tariff policy.
dairy farming, 102 ; number of dairies, *ib.*
dye-stuffs, manufacture of, 85.
electro-chemical industries, 105 ; foreign capital invested in, 111 ; value of exports, 106 ; water-power consumed in, 108.

NORWAY :
emigration, 94, 109, 114.
exports, 62, 84, 86–9, 95, 96, 98, 100, 103–6, 109, 112, 114 ; abolition of duties on, 98.
fisheries, 57, 86, 88–90, 93, 104 ; exportation of fish, 84, 86, 88, 91, 104 ; value of exports, 89 ; value of products, 97.
flour-milling, 95 ; water-power consumed, 108.
food products, number of establishments and employees, 105.
foreign trade, *see* commerce.
forestry and forest regulations, 86, 87, 97, 103 ; commercial and state forests, 103, 104 ; products, 89.
free trade, 87, 89–94, 98.
glass manufactures, 11, 85.
goats, number of, 88, 102.
grain, importation of, 34, 84, 88, 97, 102 ; production of, 84, 97 ; value of products, 88.
hogs, number of, 88, 102.
horses, number of, 88, 102.
illumination industry, foreign capital invested in, 111 ; number of establishments and employees, 105.
imports, 62, 84, 87–92, 97, 100–2, 109, 114 ; reduction of duties on raw materials, 87.
industrial development, 83, 93, 101 ; abolition of guild regulations, 87 ; foreign capital invested in industrial corporations, 101, 109, 111 ; number of establishments and employees, 95, 105.
iron industry, 11, 89, 105, 112 ; output of smeltries, 89, 96.
iron-mines, 84.
iron ore, 112 ; exportation of, 96.
leather manufacture, 105.
live-stock, number of, 88, 97, 102.
lumber industry, 87, 89, 93–5, 104.
machinery manufacture, 89 ; number of establishments and employees, 105.
manufactures, growth and development of, 84–6, 91, 92, 95, 101–2, 105 ; duties on, 100–1 ; number of establishments and employees, 105 ; value of exports, 106 ; value of products, 105.

NORWAY:
match factories, 95–6; exports, 96; value of exports, 106.
mercantilism, 83, 85, 89, 110, 115.
merchant fleet, *see* shipping.
metal manufactures, foreign capital invested in, 111; number of establishments and employees, 105.
milling industry, 95, 108.
mineral wealth, 100, 106, 112.
mining industry, 84, 86, 89, 105, 112; concessions, 113; foreign capital invested in, 111; legislation concerning, 113; number of establishments and employees, 105, 113; output of mines, 89.
nationalism, 85, 98, 101, 109, 115.
navigation licences, 85.
navigation policy, 86, 87, 91, 99; *see also* shipping.
nickel, exportation of, 96.
nitrate, value of exports, 106, 108.
oil-mills, 85.
ore, exportation of, 96; output, 89; value of exports, 106, 112.
paper manufacture, 85, 105; foreign capital invested in, 111; value of exports, 106; water-power consumed by mills, 108.
pig-iron production, 89.
population, 115.
pork, importation of, 97.
potatoes, total yield of, 97; value of products, 88.
pottery works, 85.
privateering, 85.
protection, 85, 88, 90, 91, 93, 94, 97–101.
pyrites, exportation of, 96; value of output, *ib.*
railway system, 95, 108; length of lines, 115.
reclamation works, 102.
reindeer, number of, 102.
rubber manufacture, 105.
saltpetre, manufacture of, 108; value of exports, 106; water-power consumed, 108.
salt-works, 85.
saw-mills, concession system and privileges, 83, 86, 87; local monopolies, 83; water-power consumed by, 108.
seal-fishing, 86.
NORWAY:
sheep, number of, 88, 102.
shipbuilding, 95.
shipping, 31, 89, 90, 93, 100, 113, 115; effect of the great wars on, 83, 84; freight earnings, 94, 100, 113; policy towards, 86, 87, 91, 99; tonnage of the merchant fleet, 84, 86, 95, 113; treaty with France, 46–7.
silver, production of, 84, 96.
small holdings, loans for, 102.
spinning-mills, 89.
stock-raising, 88, 97, 102.
stone industry, number of establishments and employees, 105.
Storthing, the, 90, 93, 98, 99, 101.
sugar refineries, 85.
tariff policy, 60–1, 86, 89–94, 97–101, 114.
technical and trade schools, 115.
textile industry, 85, 89; number of mills and employees, 105.
timber industry, 86, 87, 89; concession law, 103; exports, 84–7, 95, 104; restrictions on cutting abolished 83; transportation facilities, 95; value of exports, 89.
tourist traffic, 114.
trade with Sweden, 44–5, 60–2.
war with England, 84; with Sweden, *ib.*
waterfalls, 103, 107, 113; legislation regarding, 109–10; private and communal ownership of, 109, 112.
water-power, 95, 100, 101, 105–7, 111; concessions, 113; foreign capital invested in companies, 101, 109–11; Government policy concerning, 76, 101, 109, 110; power consumed, 108.
whale-fishing, 86, 91, 104–5, 114.
wood manufactures, number of establishments and employees, 105; water-power consumed, 108.
wood-pulp industry, 95, 105; exports, 95, 104; value of exports, 106; water-power consumed, 108.
zinc, 108; value of exports, 106.
Norwegian Association of Manufacturers and Industrial Workers, 97.

Oresund toll, repeal of the, 43.
'Östasiatisk Kompagni', 31.
'Östindiske Kompaniet', 36.

Parliamentary Tariff Commission (Norway), 99.
Pasch, G. E., 43.
Porjus (Norrland), power-station at, 75.
Portugal, commercial treaty with Sweden, 81.
Protection, *see under* Denmark, Norway, Sweden.
Prussia, treaty with Sweden, 38.

Rjukanfoss, saltpetre factories at, 108.
Röros, copper-mines of, 96.
Russia: commercial treaty with Sweden, 38, 81; trade with Denmark, 30; Norway, 114; war with Sweden, 37.

Salangen, iron-ore deposits in, 112.
Sandvikens iron-works, 54.
'Schedule of Products' (1724), 33.
Schleswig-Holstein, Duchies of, lost to Denmark, 17; tariff system of, 15.
Skagen, 14.
South Africa, Swedish exports to, 78.
South America: trade with Norway, 88; Sweden, 78.
Spain: commercial treaties with Norway and Sweden, 57, 90.
Stockholm, factories in, 36.
'Store Kopparbergslags Aktiebolag', 35.
Straits toll, the, removal of, 16.
Sulitelma, copper-mines of, 96.
'Sveriges allmänna Hypotheksbank', 40.
SWEDEN:
  agricultural machinery, manufacture and export of, 51, 70.
  agricultural schools and institutes, 40, 51.
  agriculture, 34, 39, 40, 58–60, 69; climatic disadvantages, 80; fall in prices, 58; foreign trade, 64; numbers engaged in, 63; pressure of oversea competition, 50; surplus of harvests over consumption, *ib.*
SWEDEN:
  animal products, 63; annual trade in, 64.
  beet-sugar production, 64; value of, 69, 70.
  boot and shoe factories, number of establishments and employees, 71; value of products, *ib.*
  brandy distilleries, number of employees and value of products, 71.
  breweries, 42, 71; exportation of beer, 81.
  brick-works, 54; value of products, 71.
  butter, exportation of, 40, 51, 64; importation of, 40.
  cabinet-work, 81.
  canal system, 79.
  candle-making, 42.
  cattle, head of, 39, 64.
  cellulose manufacture, 53.
  cement manufacture, 54, 70.
  chambers of commerce, 78.
  cheese, importation of, 40.
  chemical industries, 42, 54, 70, 75; value of products, 72.
  cloth factories, 42.
  cloth ng, manufacture of, 42.
  coal-mining, 67.
  commerce: effect of the Napoleonic wars, 37, 39; progress and development, 43, 77; restrictions on, 37.
  commercial treaties: with Denmark, 38; France, 45–6, 52, 57, 59; Germany, 81–2; Great Britain, 38; Portugal, 81; Prussia, 38; Russia, 38, 81; Spain, 38–57; United States, 38.
  co-operative dairies, 64.
  copper-mines, 35.
  cotton-spinning, 42.
  cream-separator manufacture, 70.
  currency, 43.
  customs duties and regulations, 33, 37, 38, 45, 47, 48, 56, 59, 61, 81, 82; *see also* tariff policy.
  dairy farming, 51; number of dairies, 64.
  electrical works, statistics of, 70, 71.
  electro-chemical industries, 70, 74, 75.
  electro-technical industries, 70.
  emigration, 39, 50, 80.

SWEDEN :
engineering establishments, 40.
explosives, manufacture of, 54.
exports, 33, 34, 37, 39–41, 50, 51, 53–5, 62–6, 70, 73, 75, 77, 78, 82 ; duties on, 39, 81 ; prohibition of, 38.
factories, 36, 53, 69, 71 ; number of employees, 42, 53, 69 ; value of products, 42, 53, 71, 72.
fertilizers, manufacture of, 75.
fisheries, 63.
flour-mills, 42, 74 ; number of mills and employees, 71 ; value of products, *ib.*
food products, value of, 72.
food supply, 34.
foreign trade, 43, 55 ; average annual trade, 77.
forestry and forest regulations, 34, 37, 51, 52, 64, 65.
free ports, 79.
free trade, 38, 43–6, 48–9.
furniture factories, statistics as to, 71.
furs, value of, 72.
glass manufactures, 35, 42 ; number of establishments and employees, 71 ; value of products, *ib.*
goats, number of, 39.
grain, duty on, 81 ; exportation of, 39, 40, 50, 63 ; fall in prices, 58 ; harvests, 34, 39, 64 ; imports and exports, 63 ; value of products, 72.
graphics, value of products, 72.
harbours, 79.
hides, value of, 72.
hogs, number of, 39, 64.
horses, number of, 64.
imports, 40, 50, 55, 62–4, 77 ; duties on, 56, 58, 59, 61, 63, 81, 82 ; prohibition of, 38 ; removal and reduction of duties, 44–9, 57, 81, 82.
industrial development, 70 ; foreign capital invested in industrial stocks, 73 *n.* ; freedom from guild regulations, 41–2 ; number of establishments and employees, 71 ; value of products, *ib.*
' Iron Exchange ', 35.
iron industry, 35, 43, 54, 67, 74, 75 ; number of establishments and employees, 71 ; value of products, *ib.*
SWEDEN :
iron-mines, 75 ; output of, 53.
iron ore, exportation of, 66, 82, 112 ; export duty on, 81 ; output of, 65–6 ; value of exports, 73.
iron-ore production, 34, 35, 41, 67 ; limitation of output, 65.
knitting-mills, number of establishments and employees, 71 ; value of products, *ib.*
live stock, exportation of, 40, 51, 64 ; importation of, 40 ; number of, 39, 50–1, 64.
lumber industry, 37, 40, 41, 51–3, 65 ; duty on exports, 39 ; exports, 33, 34, 41 ; foreign capital invested in, 73 *n.*
machinery manufacture, 42–3, 51, 54, 70, 72, 74 ; exports, 70, 73 ; number of establishments and employees, 71 ; value of exports, 73 ; value of products, 71.
manufactures, growth and development of, 35, 39, 42, 49, 60–2, 69 ; number of factories and employees, 71, 73 ; value of exports, 73 ; value of products, 69, 71, 72.
match factories, 42, 54 ; number of factories and employees, 54, 71 ; value of exports, 54 ; value of products, 54, 71.
mechanical engineering establishments, 36.
mercantilism, 35, 37, 42.
merchant fleet, *see* shipping.
metal manufactures, 54 ; number of factories and employees, 71 ; value of exports, 73 ; value of products, 71, 72.
metals, value of exports, 73.
milling industry, 74.
minerals, manufactured and unmanufactured, value of exports, 73.
mining industry, 34, 35, 41, 53, 67, 82 ; foreign capital invested in, 73 *n.* ; Government regulations, 67, 68 ; numbers employed in, 67.
mortgage credit system, 40, 58.
nationalism, 62, 80, 98.
navigation loan fund, 77.
navigation policy, 44–7, 57 ; *see also* shipping.
oil, value of, 72.
oleomargarine factories, 71.

SWEDEN :
ore, exportation of, 75, 82.
paper manufacture, 42, 49, 54, 71, 74 ; number of mills and employees, 54, 71 ; value of exports, 54, 73 ; value of products, 54, 71, 72.
peat manufacture, 72.
pig-iron production, 35, 41, 53, 66.
population, 39, 50.
porcelain works, 35, 42.
protection, 25, 33, 37, 38, 43–6, 49, 56–62, 81–2.
railway system, 40, 43, 76 ; length of lines, 55, 79.
registration tax, 56.
representation, parliamentary, 47.
rubber manufacture, 70, 73 ; number of factories and employees, 71 ; value of products, 71, 72.
rye, 58 ; importation of, 50.
salt-herring, exportation of, 64.
saw-mills, 34, 40, 42, 52, 53, 65, 74 ; number of mills and employees, 71 ; value of products, *ib.*
sheep, number of, 39, 64.
shipping, 31, 33, 37, 38, 40, 43, 44, 77 ; policy towards, 44–7, 57, 76–7 ; tonnage, 43, 55, 78–9 ; treaty with France, 45–6.
shipyards, 72, 76 ; number of yards and employees, 71 ; value of products, 71.
silk-weaving, 35, 42.
silver, production of, 35.
smuggling, 37.
soap manufacture, 42 ; number of factories and employees, 71 ; value of products, *ib.*
spinning-mills, 71.
spirits, manufacture of, 42.
steel production, 41, 53, 66, 75 ; number of establishments and employees, 71 ; value of products, *ib.*
stock-raising, 39, 50–1, 63.
stone industry, 72, 81.
sugar manufacture, 42, 53, 69, 70 ; number of factories and employees, 71 ; value of products, *ib.*
superphosphate production, 54 ; number of factories and employees, 71 ; value of products, *ib.*
tanning industry, 42 ; number of tanneries and employees, 71 ; value of products, *ib.*
SWEDEN :
tar, manufacture of, 73.
tariff policy, 25, 33, 37, 38, 43–50, 56–62, 81–2.
technical education, 70.
telephone manufacture, 70.
terra-cotta works, 71, 72.
textile industry, 35, 36, 42 ; number of mills and employees, 71 ; value of products, *ib.*
thermo-electric industry, 74, 75.
timber industry, exportation of products, 53, 65 ; value of unmanufactured exports, 65.
tobacco factories, 35, 42 ; number of employees and value of products, 71.
trade with Denmark, 16, 30 ; with Norway, 44–5, 60–2, 114.
transportation facilities, 40, 41, 43.
wagons, manufacture of, 72.
war with Norway, 84 ; with Russia, 37.
waterfalls, ownership of, 75, 76.
water-power, 53, 70, 73 ; foreign capital invested in companies, 73 *n.* ; Government policy concerning, 75–6 ; power consumed, 74–5.
wheat, fall in prices of, 58 ; importation of, 50.
wood manufactures, exportation of, 53, 74 ; value of exports, 73 ; value of products, 72.
wood-pulp industry, 53 ; exports, 54 ; number of mills and employees, 71 ; value of products, *ib.*
wool-weaving, 42.
' Swedish Weeks ', 80.
Sydvaranger, iron-ore deposits in, 112.

Tönsberg, importance of whale-fishing to, 86.
Trollhättan, central power-station at, 75 ; first cellulose factory established at, 53.
Trollhättan Canal, 40, 79.

United States : trade with Denmark, 30 ; Norway, 114 ; treaty with Sweden, 38.

Wärmland, lumber industry of, 41.
West Indies : trade with Denmark, 12 ; Norway, 88.

GENERAL APPENDIX

PUBLICATIONS OF THE DIVISION OF ECONOMICS AND HISTORY

THE Conference which met at Berne in 1911, under the auspices of the Division of Economics and History of the Carnegie Endowment for International Peace, appointed three Commissions to draft the questions and problems to be dealt with by competent authorities in all countries. The first Commission was entrusted with *The Economic and Historical Causes and Effects of War*; the second with *Armaments in Time of Peace*; the third with *The Unifying Influences in International Life.* Subsequently the suggestions of the three Commissions were considered and approved by the entire Conference.

The questions are to be discussed scientifically, and as far as possible without prejudice either for or against war; and their discussion may have such important consequences that the questions are presented below *in extenso.*

Report of the First Commission

THE ECONOMIC AND HISTORICAL CAUSES AND EFFECTS OF WAR

The Conference recommends the following researches:

1. Historical presentation of the causes of war in modern times, tracing especially the influence exercised by the striving for greater political power, by the growth of the national idea, by the political aspirations of races and by economic interests.

2. Conflicts of economic interests in the present age:

(*a*) The influence of the growth of population and of the industrial development upon the expansion of States.

(*b*) The protectionist policy; its origin and basis; its method of application and its influence upon the relations between countries; bounties (open and disguised, public and private); most favoured nation treatment; the attitude towards foreign goods and foreign capital; the boycott; discouragement of foreign immigration.

(*c*) International loans; the policy of guarantees; the relations of the creditor to the debtor States; the use of loans for gaining influence over other States.

(*d*) Rivalry among States with respect to capitalist investments in foreign countries:

1. The endeavour to obtain a privileged position in banking enterprises, in the opening and development of mines, in the letting of public contracts, in the execution of public works, in the building of railways (Siberian, Manchurian, Persian Bagdad Railway, Adriatic Railway, &c.); in short, the organization of larger capitalistic enterprises in foreign countries.

2. The hindering of foreign countries by convention from executing productive enterprises on their own soil, e.g. from building railways in their own countries.

3. The anti-militarist movement, considered in its religious and political manifestations. (Only opposition to all military organization is here to be considered.)

4. The position of organized labour and the socialists in the various States on the questions of war and armaments.

5. Is it possible to determine a special interest of individual classes making for or against war, for or against standing armies?

6. The influence of women and woman suffrage upon war and armaments.

7. The extension of obligatory military service in the different States, in times both of war and of peace.

(*a*) The conditions of military service; the system of enlistment and of general obligatory service, the actual position of aliens.

(*b*) The ratio of the persons obliged to render military service to the entire population.

(*c*) The influence of the present system of military obligation and the organization of armies upon warfare and upon its duration.

8. The economic effects of the right of capture and its influence upon the development of navies.

9. War loans provided by neutral countries; their extent and influence on recent warfare.

10. The effects of war:

(*a*) Financial cost of war. The methods of meeting it: Taxation; International Loans; External Loans.

(*b*) Losses and gains from the point of view of public and private economic interests; checks to production and the destruction of productive forces; reduction of opportunities for business enter-

prises; interruption of foreign trade and of the imports of food; the destruction of property; shrinkage of values of property, including securities; financial burden caused by new taxes, debts, and war indemnities; effects upon private credit and upon savings banks; advantages to those industries which furnish military materials; advantages and disadvantages to neutral countries.

(*c*) The effects of war upon the supply of the world with food and raw materials, with special reference to those States which are in large degree dependent upon other countries for such supplies, e.g. Great Britain and Germany; by diversion of capital from those countries which produce food and raw materials (especially the stoppage of railway building and of new investments in agriculture and other industries).

(*d*) The condition of the victorious State: manner of levy and use of contributions and war indemnities; influence upon industry and social life.

(*e*) The manner in which the energy of nations is stimulated or depressed by war.

11. Loss of human life in war and as a result of war: influence upon population (birth-rate, relation between the sexes, ratio of the various ages, sanitary conditions).

12. The influence of war and of the possibility of war upon the protective policy, upon banking conditions (especially upon banks of issue), and upon monetary systems.

13. The influence of annexation upon the economic life of the annexing States, and upon the State whose territory has been annexed.

14. The annexation of half-civilized or uncivilized peoples, considered especially from the point of view of the economic interests, which act as motive powers; the methods through which private enterprises take root in such regions and through which they bring influence to bear upon their own governments; the effects of such annexations upon the development of trade with the annexing State and with other countries, as well as upon the economic and social life of the natives.

15. The progressive exemption of commercial and industrial activities from losses and interferences through war.

16. Influence of the open door policy upon war and peace.

GENERAL APPENDIX

Report of the Second Commission

ARMAMENTS IN TIME OF PEACE. MILITARY AND NAVAL ESTABLISHMENTS. THE THEORY, PRACTICE, AND HISTORY OF MODERN ARMAMENTS.

1. Definition. Armaments might be described as ' the preparations made by a State either for defence or for attack '. These would include the provision of food, financial preparations, and also semi-military railways, canals, docks, &c.

2. Causes of armaments. Motives for increasing or commencing them, distinguishing the great from the small powers.

3. Rivalry and competition in armaments. Motives and consequences of rivalry, with the possibilities of limitation.

4. Modern history of armaments, with special fullness from 1872. To be noted as important landmarks :

(*a*) The introduction of conscription into Germany, France, Austria, Italy, Japan, &c.

(*b*) Modern inventions affecting war.

(*c*) The question of privateering and private property at sea.

(*d*) Duration of military service.

(*e*) The traffic in arms.

5. Military budgets from 1872 (distinguishing ordinary from extraordinary expenditures).

6. The burden of armaments in recent times.

(*a*) The proportion of military to civil expenditure.

(*b*) Military expenditure per capita.

(*c*) Military expenditure from loans in time of peace, i.e. a comparison of expenditure from taxes with expenditure from borrowed money.

(*d*) Comparative burdens of individual taxpayers in different countries and the extent to which the differences are due to armaments.

(*e*) Military pensions.

(*f*) It is desirable to ascertain where possible the ratio between the total income of each nation and the total expenditure on armament at various times.

7. The effects of war preparations upon the economic and social life of a nation :

(*a*) On the sustenance of the entire population of a country at war.

(*b*) On railway policy.

(*c*) On public administration and on social legislation.

8. The economic effects of withdrawing young men from industrial pursuits, into the army and navy :

(*a*) Compulsory.

(*b*) Of non-compulsory service (specially in the case of mercenary troops).

(Allowance being made for the industrial value of military education and training.)

9. The influence of changes in the occupations of a people upon the composition and efficiency of armies, and the influence of the changes in the composition of armies on the economic life.

10. Loans for armaments (participation of domestic and foreign capital).

11. The industries of war, i.e. the various manufactures and other industries which are promoted and encouraged by military and naval establishments, distinguishing between :

(*a*) Government undertakings (arsenals, dockyards, &c.).

(*b*) Private undertakings, including the history and working of the great armament firms, which sell to foreign customers as well as to their own governments.

12. War materials (munitions of war). Their recent development and their cost. This includes arms, ammunition, armour-plate, warships, guns of all kinds, military airships, &c. So far as possible the effect of recent inventions upon offensive and defensive war should be indicated.

Report of the Third Commission

THE UNIFYING INFLUENCES IN INTERNATIONAL LIFE

1. The Conference is of the opinion that the economic life of individual countries has definitely ceased to be self-contained ; and that, notwithstanding the barriers raised by fiscal duties, it is becoming in ever increasing measure a part of an economic life in which the whole world participates.

2. It desires that this change be studied with the object of ascertaining to what extent the economic life of individual nations has ceased to be self-contained, and the causes which are bringing about the greater interdependence of nations.

3. Special attention should be paid to the following factors :

(*a*) How far the growth of population is responsible for the changes that have occurred and are in progress.

(*b*) The extent to which the insufficiency of the natural resources of individual countries for their own requirements has contributed to it.

(*c*) Whether the increasing economic unity of the world is the cause or the result of the rising in the standard of living, and how far the increasing welfare of nations has been caused by the growing unity.

(*d*) In what measure the need of individual countries to obtain materials of production from other lands and to find new markets for their own products is responsible for the growth of international dependence.

4. The Conference desires that investigations be made into :

(*a*) The volume of the world's production of all the many articles of food, of the various raw materials and of the principal manufactures.

(*b*) The productions of individual countries, and the extent to which they are retained for home consumption or are exported.

(*c*) The consumption of individual countries, and the extent to which the various articles are supplied from home productions or are imported.

5. The Conference wishes to ascertain to what extent the economy of production by large units, instead of by small units, has contributed to the international dependence of nations.

6. The development of this world-embracing economy has taken place in great measure in consequence of the investment of capital by rich countries in less developed lands. Through this there have arisen close relations and a great increase of wealth, not only for the lending and the borrowing countries, but for all nations. The Conference is of the opinion that researches should be made into the extent of the interdependence of the nations in the matter of capital.

7. The Conference desires to institute inquiries into the interdependence of the financial centres of the world.

8. The Conference desires to make the unifying effects of international trade, the building of railways, the progress of shipping, the improvement and extension of all means of communication and the progress of inventions, the subjects of careful investigation.

9. The Conference is in favour of making a comprehensive study of the various international unions and associations, in which the social and economic interests of all classes of society are now either organized or in process of organization, through official or private action.